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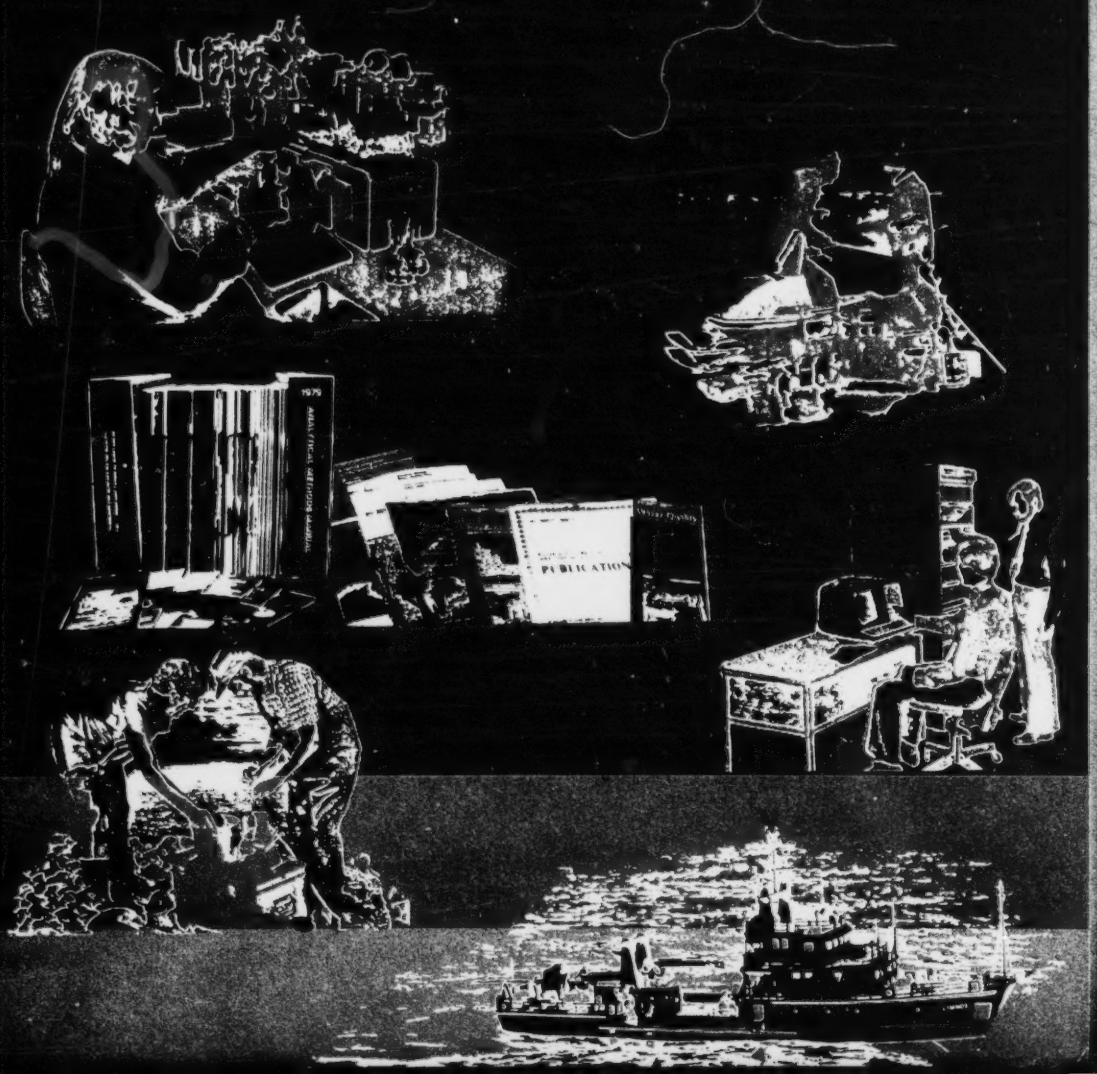
Water Quality Branch

Direction de la qualité des eaux

Canada



WATER QUALITY BRANCH ACTIVITIES
1985-1986

ACTIVITES DE LA DIRECTION DE LA QUALITE DES EAUX 1985-1986

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TEXTE PROVISOIRE

A. SUMMARY

This report documents the Water Quality Branch's monitoring plans, laboratory operations and other activities for the fiscal year 1985-86.

The publication provides details of the Water Quality Branch headquarters and regional programs and their respective projects. The details include: goals and rationale, brief project description, station locations, frequency of sampling and parameters measured, person-years and financial resources required.

The document has been compiled from the 1985-86 project sheets, which were prepared prior to the beginning of the fiscal year, and consequently does not contain any projects initiated since then. Major omissions are not expected however, and the projects were on schedule at printing time in August 1985. A comparison of Table 1, with Tables 3 - 5 reveals discrepancies between various numbers. The figures of Table 1, provided by the IWD-Administration, represent the actual resources allocated to the WQB as of April 1985. Tables 3-5, as mentioned above, were compiled from planning papers.

The document is for internal use by the WQB and it provides a record of the Water Quality Branch programs and projects. It should also provide useful information for senior management.

2. RESUME

Le présent rapport énonce les travaux de laboratoire, les activités de surveillance et les autres opérations que la Direction de la qualité des eaux se propose d'effectuer au cours de l'année financière 1985-86.

On y donne des détails au sujet des programmes et des projets des bureaux régionaux et de l'administration centrale de la Direction de la qualité des eaux. Des détails comprennent les objectifs et leur justification, de brèves descriptions des projets, l'emplacement des stations, la fréquence des échantillonnages, les paramètres mesurés et les ressources humaines et financières nécessaires.

Ce document a été établi à partir des fiches de projets pour 1985-86, lesquelles ont été rédigées avant le début de l'année financière; en conséquence, il ne donne aucun renseignement sur les projets qui ont été élaborés au cours de l'année financière. La majorité des projets y sont énumérés cependant, et aucun n'était en retard au moment de l'impression, soit en Août 1985. Une comparaison du tableau 1 et des tableaux 3 à 5 indique certaines differences. Ces dernières s'expliquent du fait que les données du Tableau 1, qui ont été fournies par l'administration de la Direction générale des eaux intérieures, représentent les ressources réelles qui avaient été accordées à la Direction de la qualité des eaux en avril 1985, tandis que les tableaux 3 à 5 ont été établis à partir des fiches de projects, lesquelles ne donnent que des prévisions.

Le document n'est destiné qu'à la Direction de la qualité des eaux. Il constitue un registre des programmes et projets de cette direction. Il devrait en outre se révéler utile aux cadres supérieurs à titre d'information.

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B. INTRODUCTION

B.1 Inland Waters Directorate

The Inland Waters Directorate (IWD) has the prime federal responsibility for monitoring freshwater resources in Canada, as well as other responsibilities. The Directorate's work, is carried out by three operational branches - Water Quality, Water Resources, and Water Planning and Management, and the Research Coordination and Program Evaluation Branch at headquarters, and five regional components across Canada. Two institutes - the National Hydrology Research Institute (NHRI), in Ottawa, and the Natioanl Water Research Institute (NWRI), Burlington, comprise the main research components of the Directorate.

B.2 Purpose of the Water Quality Branch

Within IWD, the purpose of the Water Quality Branch (WQB) is to promote the conversation and enhancement of the quality of Canada's inland water resources for the economic and social benefit of Canadians by providing scientific and technical information and advice on water quality.

Additional information of the purpose, role and activities of the Branch can be found in the "Business of the Water Quality Branch", an Inland Waters Directorate publication, (Ottawa, 1985).

B.3 Role of the Water Quality Branch

The role of WQB is:

1. To provide scientific and technical information and advice to government, private agencies and the public, and to promote the wise management of the quality of waters:

   a) shared by Canada and the United States, and by one or more provinces and/or territories;

   b) on federal lands, such as national parks, Indian reserves, heritage canals; and other properties and facilities where water resource management is primarily a federal responsibility;

   c) where there is federal responsibility such as for fisheries and wildlife;

   d) subject to impact by federally funded projects.

2. To detect emerging water quality problems and to evaluate water quality issues on Canada's inland waters from regional and national point of view.

The Branch's role is operational. Research and related support services are provided by the research institutes, NWRI and NHRI. The Branch in turn provides operational support to both institutes.

B.4 The structure of the Water Quality Branch

The Water Quality Branch comprises an interdisciplinary team of chemists, biologists, geologists, hydrologists, geographers, meteorologists, and technicians, each of whom fills a specialized role in the complex undertaking of measuring and assessing water quality.

The Branch is decentralized with Headquarters in the National Capital Region and regional offices in Moncton, N.B. (Atlantic region); Longueuil, Que. (Quebec Region); Burlington, Ont. (Ontario Region); Regina, Sask. (Western and Northern Region); and Vancouver, B.C. (Pacific and Yukon Region). Western and Northern Region also has district offices located in Winnipeg, Manitoba, and Calgary, Alberta, and a water quality specialist located in Yellowknife, NWT. (See Figure B1 for a Branch organization chart).

Administratively, the Headquarters and regional components function under different lines of autority, with the Headquarters group reporting through the Water Quality Branch Director and the regional offices reporting through their respective Regional Director to the Director General, Inland Waters Directorate.

B.5 Headquarters and Regional Roles

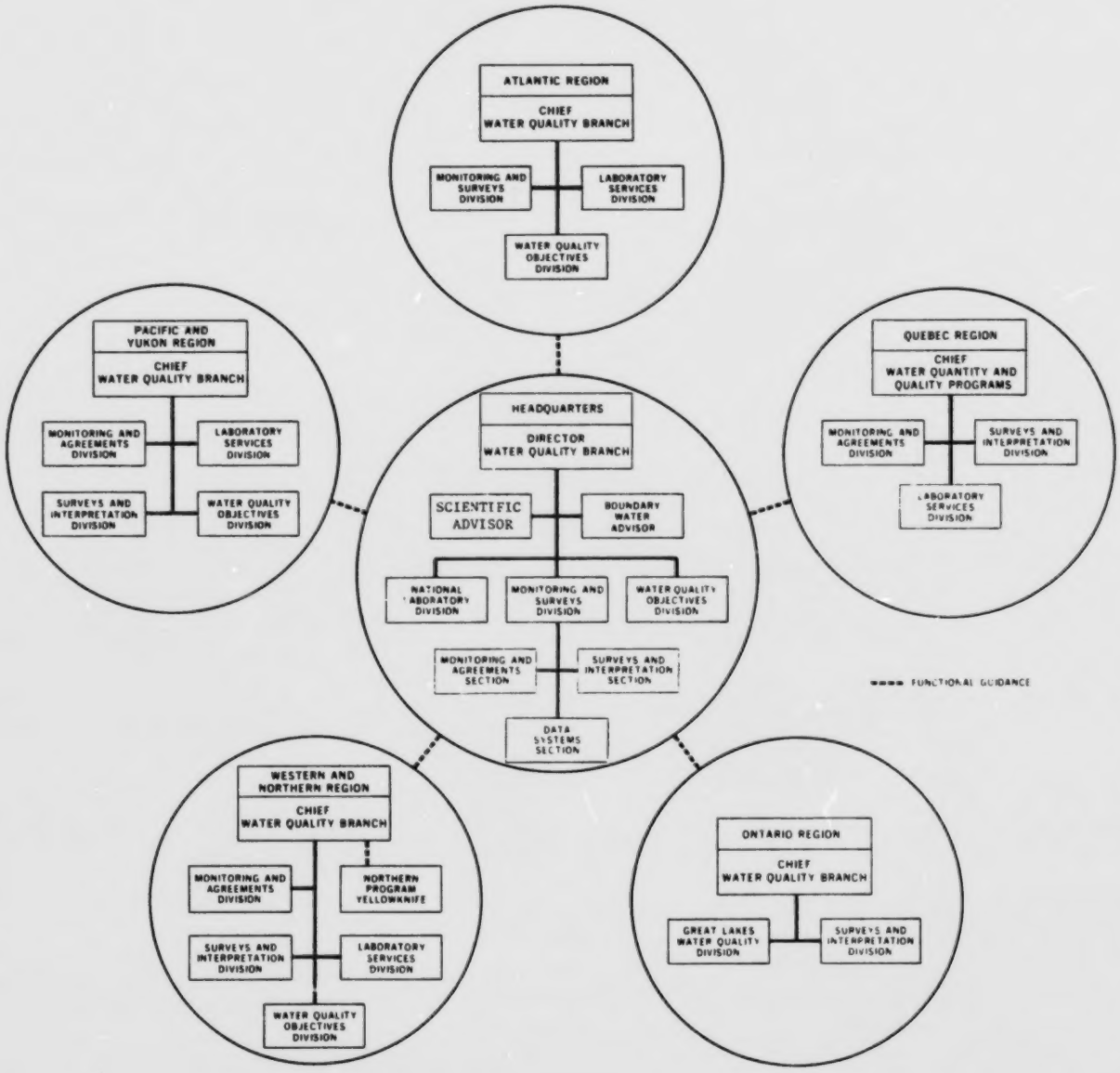
The Headquarters and the regional offices share the responsibility for delivering an effective and efficient federal water quality program. Figure B2 shows the major responsibilities and linkages of the regional offices, headquarters and the national laboratory.

Headquarters is responsible for coordinating water quality programs to meet national requirements. It also formulates national policies and provides guidance in the development of the operational plans, establishes national goals and priorities, prepares nationally focussed water quality reports, and provides information and advice on water quality. The regional offices are responsible for planning, designing and implementing water quality programs and for providing water quality information and advice.

Both Headquarters and regional offices share the responsibility for identifying research needs relevant to achieving Branch objectives. Operational contacts are appointed to liaise with researchers in both government and private sectors. In this way the Branch influences the direction of research undertaken by the two national research institute and transfers research results to the operational program.

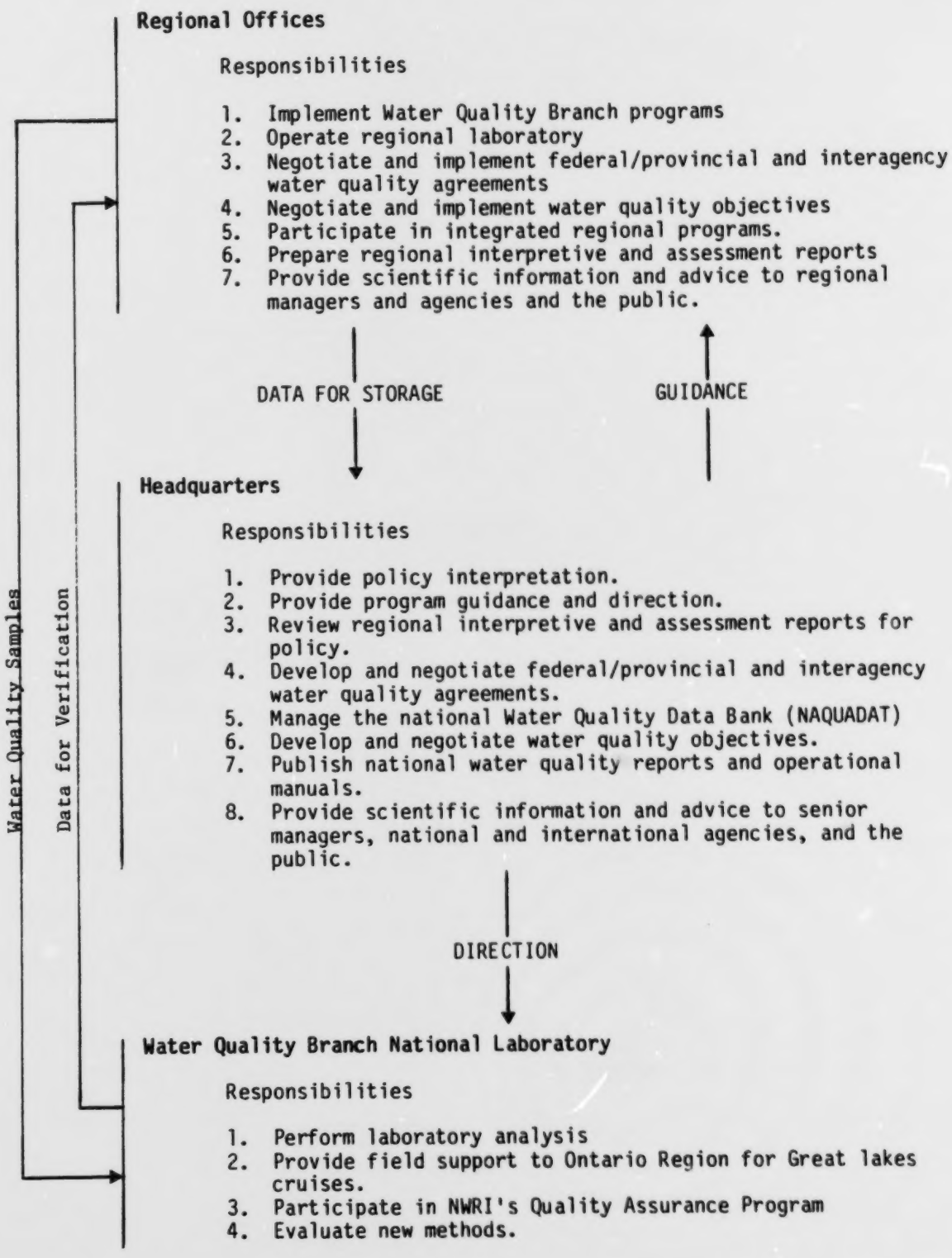
Headquarters is also responsible for the National Water Quality Data Bank (NAQUADAT), a computerized data storage and retrieval system, operated and maintained by the Water Quality Branch. NAQUADAT contains data from some 5000 locations in Canada. The system stores the results of environmental analyses and other data about the samples and sampling locations, and produces a large variety of graphical and statistical reports.

FIGURE B1: SCHEMATIC ORGANIZATION OF THE HEADQUARTERS AND THE REGIONAL OFFICES OF THE WATER QUALITY BRANCH (WQB)



* FIVE REGIONAL OFFICES LOCATED IN VANCOUVER, REGINA (CALGARY, SASKATOON AND WINNIPEG), BURLINGTON, LONGUEUIL AND MONCTON.

Figure B.2: Responsibilities within the Water Quality Branch



B.5.1 Divisional Responsibilities

The Branch, at Headquarters and in the regions, has three divisions briefly described below.

B.5.2 Monitoring and Surveys Division

This Division is responsible for the measurement and assessment activities of the Branch including planning of projects, collection of samples, interpretation of data and preparation of reports.

The Division also develops policies, negotiates water quality monitoring agreements and provides information and advice for the management of the water resource.

B.5.3 National Water Quality Laboratory

Located in the Canadian Center for Inland Waters (CCIW) in Burlington, Ontario, the National Laboratory is responsible for providing water quality data by analyzing environmental samples sent in by the Branch's regional offices located in Burlington, Moncton, Longueuil, Regina and Vancouver as well as other government agencies. Staff provide an advisory and consultative service to senior officials,

scientists and researchers in the Department, other departments and agencies on analytical chemistry, laboratory operations, water chemistry and data interpretation. The National Laboratory maintains the "Analytical Methods Manual" which documents the approved methods and techniques used by analysts in the Branch laboratories and many other federal, provincial and private laboratories.

B.5.4 Water Quality Objectives Division

The Water Quality Objectives Division provides the Branch with the expertise for defining, negotiating and formulating water quality objectives and other tools for management of water quality, and for evaluating their benefits. An important consideration in the Division's work is the need to reconcile industrial growth with the need to preserve or enhance water quality.

In 1985/86 the Division will be using most of its resources in preparing the "Canadian Guidelines for Surface Water Quality" for the Canadian Council of Resource and Environment Ministers (CCREM).

B.6 Federal/Provincial Water Quality Agreements

In January 1982, Environment Canada obtained Cabinet approval to negotiate agreements with the provinces for the collection of water quality data and information. These agreements will provide for long-term committments and compatible data bases, accurate and comprehensive information and improved federal-provincial relations, as well as significant improvements in the efficiency and effectiveness of WQB's program.

The first agreement with the province of Québec was signed in May 1984. Negotiations, with the provinces of Newfoundland, British Columbia and Alberta, have reached their final phase and negotiations with Manitoba and New Brunswick are in progress. Negotiations will be initiated with the remaining provinces during the course of the year.

The river basin concept is the basic approach used for the planning of water quality activities covered by a given agreement. Governments cooperatively identify water quality issues of concern. Then the most representative basins related to these issues are chosen. In the basins of interest to both federal and provincial governmnets the cost of data collection is shared.

The agreements include joint planning and data interpretation, regular exchange of information; and compatible sampling, analytical and quality assurance protocols. Station operation varies from one

agreement to another. In the Québec agreement the federal-provincial stations are operated by the Province. In the draft Alberta agreement all stations, including the provincial, are operated by the federal government.

B.7 Resources

In order to conduct its activities the Branch has a budget (1985-86) of approximately 9.2 million and 163 person-years plus some additional, non A-base resources. Part of this budget is committed to analytical support of the departmental research programs. More detailed breakdowns of these resources are shown in Tables 1-5.

B.8 Objectives of the ECS National Programs to which WQB Contributes

1.1 Canada - U.S. and Interjurisdictional Water Management

To resolve interjurisdictional water resource problems and realize interjurisdictional water resource opportunities in accordance with national interests.

1.3 Water Quality Management Data

To provide comprehensive, accurate and timely data, information and advice on the quality of Canada's Inland waters.

1.5 Water Management Research

To advance knowledge and provide information and understanding required for the solution of water management problems and the realization of water development opportunities.

1.6 Management and Administration

To plan, manage and control the policies, programs and activities of the Inland Water Directorate in an effective and efficient manner.

4.1 Toxic Chemicals

To provide information on the characteristics and presence of toxic chemicals in the environment, the pathways of these chemicals through ecosystems, and knowledge of their actual and potential impacts on the environment.

4.2 Long Range Transport of Airborne Pollutants (LRTAP)

To monitor, predict and evaluate impacts of airborne pollutants on aquatic and terrestrial ecosystems.

4.3 Environmental Assessment and Baseline Studies

To participate effectively in the Environmental Assessment and Review Process and to provide environmental knowledge and predictive capability which will ensure that federal decisions on major development proposals reflect environmental and renewable resource concerns.

Each project description of Chapter D shows the national program to which the project contributes.

C. SUMMARY OF RESOURCES (TABLES)

Table 1
Water Quality Branch
Allocation of Resources 1985-86 ($'000)

Item	H.Q. PVM.	H.Q. Lab.	Atl.	Que.	Ont.	W&N	NWT	P&Y	Total Allocation	Total Estimated
Person-Years										
A-base	26.75	44.25	27.00	9.33	11.85	24.75	1.00	18.80	163.73	(162.70)
non A-base					2.45	2.03			4.48	(4.48)
Salaries										
A-base	1351.10	1214.70	995.00	346.00	440.50	867.60	45.08	694.00	5953.98	(5907.86)
non A-base					67.06	63.13			130.19	(130.19)
Operating										
A-base	429.70	580.00	198.00	225.20	126.90	442.20	25.50	400.00	2427.50	(2499.00)
non A-base	20.00		100.00			52.27	30.00		202.27	(202.27)
Capital										
A-base	60.00	171.00	95.00	23.40	25.00	110.50	5.00	100.30	590.20	(692.00
non A-base			15.00			12.00	2.00		29.00	(29.00)
Grants & Contrib.	197.00	.00	.00	.00	.00	.00		.00	197.00	(197.00)
TOTAL										
A-base	2064.55	2009.95	1315.00	603.93	604.25	1445.05	76.58	1213.10	9332.41	(9458.56)
non A-base	20.00	.00	115.00	.00	69.51	129.43	32.00	.00	365.94	(365.94)

NOTE: This table shows the resources allocated to the W.Q.Bs units at the start of the fiscal year. The bracketed totals show the estimated resources. The difference between resource allocation and estimated resources (the last two columns) is due to early estimates and resource shifts during the year. The tables which follow are based on estimated resources.

Table 2
Summary of Stations in Water Quality Branch Programs 1985-86

ECS Programs/ WQB Projects	NFLD &LAB	PEI	NS	NB	QUE	ONT	MAN	SASK	ALTA	NWT	BC	YUK	Total
1.1 CAN-US & INTERJURISDICTIONAL WATERS													
International				16		4	1						21(6)
Great Lakes						270							270
Interprovincial						2			1	2			5
Atmospheric Precip.						16							16
Prairie Prov. Water Board							1	6	4				11
Water Quality Objectives											3		3
Other													0
Subtotal	0	0	0	16	0	292	2	6	5	2	3	0	326
1.3 WATER QUALITY MANAGEMENT DATA													
International				(3)	12(7)	(1)	7	7	6		26		58
Interprovincial							7			1	1	3	12
G.E.M.S.				(1)	(1)	3	(2)		(1)	(2)	1		4(7)
Atl. Region Overview	8	3	7	6(3)									24(3)
Benchmark Basins									1				1
W&N Adhoc Agreements								6					6
Nat. Parks Agreement									5	1			6
Other					10	5	3			16(1)	1		35( )
Monitoring Agreements													
Federal					102				11				113
Fed/Prov. (cost shared)					95								95
*Provincial					83**								83**
Subtotal	8	3	7	6	219	8	17	13	23	18	29	3	354(11)
4.1 TOXIC CHEMICALS													
Radionuclides	1		2	2			(3)	(7)		(1)			5(11)
Organics in Precip.		1	2			4							7
Toxic Chemicals						9(1)		2(1)			4		15(2)
W.Q. Objectives											5		5
Subtotal	1	1	4	2	0	13	0	2	0	0	9	0	32(13)
4.2 LONG RANGE TRANSPORT OF AIRBORNE POLLUTANTS													
LRTAP Monitoring	40(6)	(2)	58	(4)	35								133(12)
Subtotal	40	0	58	0	35	0	0	0	0	0	0	0	133(12)
TOTAL FEDERAL	49	4	69	24	159	313	19	21	28	20	41	3	750
TOTAL FED./PROV.	0	0	0	0	95	0	0	0	0	0	0	0	95
TOTAL FED.& FED./PROV.	49	4	69	24	254	313	19	21	28	20	41	3	845
TOTAL PROVINCIAL*	0	0	0	0	83	0	0	0	0	0	0	0	83*
GRAND TOTAL	49	4	69	24	337	313	19	21	28	20	41	3	928

"( )" Denotes stations that have been accounted for in other program numbers
* Data from Provincial stations are available to DOE as required.
** Not added here - but included below in grand total.

Table 3
Water Quality Branch Summary of Resources
by Region for ECS National Programs - 1985-86 (estimated)

Region / ECS National Program	Person Years	Financial Resources ($'000) Salaries	O&M	Grants & Contrib.	Capital	Total	
Headquarters - PVM							
1.1 Canada-US & Interjurisdictional Water Management	3.70	199.40	19.00	-	-	218.40	
1.3 Water Quality Management Data	10.70*	468.70	165.20	197.00	17.50	848.40	
1.6 Management & Adm	2.80	238.50***	176.50	-	10.00	425.00	
4.1 Toxic Chemicals	8.05	374.10	59.00	-	32.50	465.60	
4.2 L.R.T.A.P.	1.50	70.40	10.00	-	-	80.40	(20.00)
Subtotal	26.75	1351.10	429.70	197.00	60.00	2037.80	(20.00)
Headquarters - National Laboratory							
1.3 Water Quality Management Data	31.00	853.30	430.00	-	137.00	1420.30	
4.1 Toxic Chemicals	12.25	337.20	150.00	-	34.00	521.20	
4.2 L.R.T.A.P.	1.00**	24.20	-	-	-	24.20	
Subtotal	44.25	1214.70	580.00	.00	171.00	1965.70	
Headquarters Total	71.00	2565.80	1009.70	197.00	231.00	4003.50	(20.00)
Atlantic							
1.1 Canada-US & Interjurisdictional Water Management	4.90	180.50	35.30	-	-	215.80	
1.3 Water Quality Management Data	10.00	369.50	78.00	-	49.00	496.50	
4.1 Toxic Chemicals	6.60	243.00	55.70	-	40.00	338.70	
4.2 L.R.T.A.P.	5.50	202.00	29.00	-	6.00	237.00	(115.00)
Total	27.00	995.00	198.00	.00	95.00	1288.00	(115.00)
Quebec							
1.1 Canada-US & Interjurisdictional Water Management	.10	3.50	.60	-	-	4.10	
1.3 Water Quality Management Data	6.70	245.30	104.50	-	3.80	353.60	
4.1 Toxic Chemicals	2.50	87.40	120.10	-	19.60	227.10	
Total	9.30	336.20	225.20	.00	23.40	584.80	

"( )" Represents additional non A-base Resources
* Includes 0.33 PY's loaned to Quebec Region
** Includes 1.0 PY loaned to NWRI
*** Includes 79.6K salary reserve

Table 3 continues on next page

Table 3 (cont'd)
Water Quality Branch Summary of Resources
by Region for ECS National Programs - 1985-86 (estimated)

Region / ECS National Program	Person Years	Financial Resources ($'000) Salaries	O&M	Grants & Contrib.	Capital	Total
Ontario						
1.1 Canada-US & Interjurisdictional Water Management	5.70(1.4)	210.17	75.30	-	20.00	305.47(35.00)
1.3 Water Quality Management Data	2.75	108.75	46.00	-	12.50	167.25
4.1 Toxic Chemicals	2.40(1.05)	85.26	77.60	-	94.50	257.36(32.06)
Total	10.85(2.45)	404.18	198.90	.00	127.00	730.08(67.06)
Western & Northern						
1.1 Canada-US & Interjurisdictional Water Management	6.00	224.30	46.40	-	12.00	282.70(15.29)
1.3 Water Quality Management Data	11.65	425.00	333.70	-	63.00	821.70(112.11)
4.1 Toxic Chemicals	6.60	200.80	60.10	-	35.50	296.40
4.3 Environ. Assessment & Baseline Studies	.50	17.50	2.00	-	-	19.50
Total	24.75	867.60	442.20	.00	110.50	1420.30(127.40)
Northwest Territories						
1.1 Canada-US & Interjurisdictional Water Management	.15	6.77	5.30	-	-	12.07
1.3 Water Quality Management Data	.60	27.04	13.70	-	-	40.74
4.1 Toxic Chemicals	.16	7.20	6.00	-	5.00	18.20(32.00)
4.3 Environ. Assessment & Baseline Studies	.09	4.07	-	-	-	4.07
Total	1.00	45.08	25.00	.00	5.00	75.08(32.00)
Pacific & Yukon						
1.1 Canada-US & Interjurisdictional Water Management	.50	18.20	57.20	-	-	75.40
1.3 Water Quality Management Data	7.80	283.70	118.90	-	50.30	452.90
4.1 Toxic Chemicals	10.50	392.10	223.90	-	50.00	666.00
Total	18.80	694.00	400.00	.00	100.30	1194.30
W.Q.B. Total	162.70(2.49)	5907.86	2499.00	197.00	692.20	9296.06(361.46)

"( )"Represents Additional non A-base Resources

Table 4
Water Quality Branch
Summary of Resources by ECS National Programs - 1985-86 (estimated)

ECS National Program	Person-Years No.	%	Financial Resources ($'000) Salaries	O&M	Grants & Contrib.	Capital	Total	%
1.1 Canada-US and Interjurisdictional Water Management	21.05	13	842.84	239.10	.00	32.00	1113.94 (50.29)	12
1.3 Water Quality Management Data	81.20	50	2781.29	1290.00	197.00	333.10	4601.39 (112.11)	49
1.6 Management & Administration	2.80	2	238.50	176.50	.00	10.00	425.00	5
4.1 Toxic Chemicals	49.06	30	1727.06	752.40	.00	311.10	2790.56 (64.06)	30
4.2 L.R.T.A.P. (Long Range Transport of Airborne Pollutants)	8.00*	5	296.60	39.00	.00	6.00	341.60 (135.00)	4
4.3 Environmental Assessment & Baseline Studies	.59	0	21.57	2.00	.00	.00	23.57	0
W.Q.B. Total	162.70 (2.45)	100	5907.86	2499.00	197.00	692.20	9296.06 (361.46)	100

"( )" Represents Additional non A-base Resources
* Includes 1.0PY's loaned to NWRI

Table 5
Water Quality Branch - 1985-86
Summary of Resources by ECS National Programs and Regions (estimated)

ECS National Program and Region	Person-Years No.	%	Financial Resources ($'000) Salaries	O&M	Grants & Contrib.	Capital	Total	%
1.1 CANADA-US AND INTERJURISDICTIONAL WATER MANAGEMENT								
Headquarters	3.70	18	199.40	19.00	-	-	218.40	20
Atlantic	4.90	23	180.50	35.30	-	-	215.80	19
Quebec	.10	0	3.50	.60	-	-	4.10	0
Ontario	5.70	27	210.17	75.30	-	20.00	305.47	27
	(1.40)						(35.00)	
Western & Northern	6.00	29	224.30	46.40	-	12.00	282.70	25
							(15.29)	
N.W.T.	.15	1	6.77	5.30	-	-	12.07	1
Pacific & Yukon	.50	2	18.20	57.20	-	-	75.40	7
Total	21.05	100	842.84	239.10	.00	32.00	1113.94	100
	(1.40)						(50.29)	
1.3 WATER QUALITY MANAGEMENT DATA								
Headquarters	41.70**	51	1322.00	595.20	197.00	154.50	2268.70	49
Atlantic	10.00	12	369.50	78.00	-	49.00	496.50	11
Quebec	6.70	8	245.30	104.50	-	3.80	353.60	8
Ontario	2.75	3	108.75	46.00	-	12.50	167.25	4
Western & Northern	11.65	14	425.00	333.70	-	63.00	821.70	18
							(112.11)	
N.W.T.	.60	1	27.04	13.70	-	-	40.74	1
Pacific & Yukon	7.80	10	283.70	118.90	-	50.30	452.90	10
Total	81.20**	100	2781.29	1290.00	197.00	333.10	4601.39	100
							(114.61)	
1.6 MANAGEMENT AND ADMINISTRATION								
Headquarters	2.80	100	238.50*	176.50	-	10.00	425.00	100
Total	2.80	100	238.50*	176.50	.00	10.00	425.00	100

"( )" Represents Additional non A-base Resources
* Includes 79.6K salary reserve
** Includes 0.33 PY's loaned to Quebec Region

Table 5 continues on next page

Table 5 (cont'd)
Water Quality Branch - 1985-86
Summary of Resources by ECS National Programs and Regions (estimated)

ECS National Program and Region	Person-Years No.	%	Financial Resources ($'000) Salaries	O&M	Grants & Contrib.	Capital	Total	%
4.1 TOXIC CHEMICALS								
Headquarters	20.30	41	711.30	209.00	-	66.50	986.80	35
Atlantic	6.60	13	243.00	55.70	-	40.00	338.70	12
Quebec	2.50	5	87.40	120.10	-	19.60	227.10	8
Ontario	2.40	5	85.26	77.60	-	94.50	257.36	9
	(1.05)						(32.06)	
Western & Northern	6.60	13	200.80	60.10	-	35.50	296.40	11
							(32.00)	
N.W.T.	.16	0	7.20	6.00	-	5.00	18.20	1
Pacific & Yukon	10.50	21	392.10	223.90	-	50.00	666.00	24
Total	49.06	100	1727.06	752.40	.00	311.10	2790.56	100
	(1.05)						(64.06)	
4.2 L.R.T.A.P. (Long Range Transport of Airborne Pollutants)								
Headquarters	2.50*	31	94.60	10.00	-	-	104.60	31
							(20.00)	
Atlantic	5.50	69	202.00	29.00	-	6.00	237.00	69
							(115.00)	
Total	8.00*	100	296.60	39.00	.00	6.00	341.60	100
							(135.00)	
4.3 ENVIRONMENTAL ASSESSMENT AND BASELINE STUDIES								
Western & Northern	.50	85	17.50	2.00	-	-	19.50	83
N.W.T.	.09	15	4.07	-	-	-	4.07	17
Total	.59	100	21.57	2.00	.00	.00	23.57	100
W.Q.B. TOTAL	162.70	100	5907.86	2499.00	197.00	692.20	9296.06	100
	(2.45)						(361.46)	

"( )"Represents Additional non A-base Resources
* Includes 1.0 PY loaned to NWRI

D. PROJECT DESCRIPTIONS
Descriptions de projects

D.1 ATLANTIC REGION
Région de l'Atlantique

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 1 & 3

PROJECT TITLE: INTERNATIONAL SAINT JOHN RIVER AND ST. CROIX RIVER

NATIONAL PROGRAM NAME: Canada/US and Interjurisdictional Water Management

ECS CODE: 1.1

GOALS:

1. To assist the Canada-U.S. Committee on water quality of the Saint John River in reporting Bi-Annually to the Governments of Canada and the U.S.A. on existing water quality in these international reaches of the river, and in recommending actions required to protect or enhance water quality in the future.

2. To assist the IJC Pollution Advisory Board in restoring an anadramous fish run to the St. Croix River and in maintaining water quality in the lower reaches of the river at an acceptable level of fish passage.

RATIONALE: Continual monitoring of the Saint John River and the St. Croix River water quality, will enable the WQB to recommend actions required to protect or enhance water quality in the future.

DESCRIPTION:

Saint John River
The surveillance for compliance with established water quality objectives will continue in 1985-86 by monitoring every six weeks for listed parameters. The bacteriological surveys will be conducted during low flow in the summer and high flow in the fall.

St. Croix River
Field measurements and collection of water samples will be made eight times a year at sites 1 to 5. Samples will be analyzed for parameter set A.

RESOURCES: ($'000)

	Total
TECH.	2.4
PY PROF.	0.8
TOTAL PY	3.2
SALARIES	118.0
O & M	28.3
CONTRACTS	-
CAPITAL	-
TOTAL $	146.3

Map No.	NAQUADAT NO.	STATION LOCATION
1	00NB01AD0013	St. Francis River at picnic site
2	00NB01AD0001	Saint John River at Clair
3	00NB01AD0016	Madawaska River below Fraser Mill outfall
4	00NB01AF0021	Green River at WSC Gauge
7	00NB01AF0005	Saint John River, above dam at Grand Falls
8	00NB01AG0003	Limestone Stream at Four Falls
9	00NB01AG0001	Aroostook River at Tinker Dam
10	00NB01AJ0012	Big Presquile Stream at Can/U.S. Border
11	00NB01AJ0029	Meduxnekeag River at Belleville
12	00NB01AR0013	St. Croix River at Kellyland (Can. side)
13	00NB01AR0014	St. Croix River at 200 m below Woodland Mill
17	00NB01AR0020	St. Croix River at Milltown (U.S. side)
18	00NB01AR0001	St. Croix River at Milltown (Can. side)
19	00NB01AR0021	St. Croix River at Milltown (Can. side)
26	00NB01AF0038	Saint John River at Saint Basile
5	00NB01AD0008	Saint John River above Edmundston

Parameters

Field

- Temperature
- Dissolved Oxygen (Meter and Winkler)
- pH
- Specific Conductance
- Fecal Coliforms

Laboratory

- pH
- Specific Conductance
- Colour
- Turbidity
- Total Alkalinity
- Calcium
- Magnesium
- Potassium
- Sodium
- Sulphate
- Cadmium - extractable
- Lead - extractable
- Copper - extractable
- Zinc - extractable
- Iron - extractable
- Mercury-extractable
- DOC
- Dissolved Inorganic Carbon
- Aluminum - extractable
- Total Suspendid Solids
- Total Phosphorus
- Phosphate - total dissolved
- Nitrate & Nitrite
- Ammonia N
- Nitrogen - total

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 4

PROJECT TITLE: CANADA - U.S. COORDINATION ON THE INTERNATIONAL SAINT JOHN RIVER

NATIONAL PROGRAM NAME: Canada/U.S. and Interjurisdictional Water Management ECS CODE: 1.1

GOALS:

To chair all ITAS meetins and to co-ordinate all ITAS activities.

RATIONALE:

Related to WQB project WQ-1.

DESCRIPTION

Co-ordination of all the various Canadian and American agencies concerned with the water quality in the international reaches of the Saint John River. This is accomplished by chairing and providing secretarial services to the International Technical Advisory Subcommittee of the Canada/U.S. Committee on Water Quality in the Saint John River.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	0.6
TOTAL PY	0.6
SALARIES	22.0
O & M	4.0
CONTRACTS	-
CAPITAL	-
TOTAL $	26.0

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 5

PROJECT TITLE: WATER QUALITY GUIDELINES & OBJECTIVES

NATIONAL PROGRAM NAME: Canada/US and Interjurisdictional Water Management

ECS CODE: 1.1

GOALS:

1. To assist WQB HQ in the preparation of National documents and reports for CCREM.
2. To promote the use of WQO within DFO, Parks Canada and DINA.
3. To promote the use of the WQO within Provincial departments of the environment.

RATIONALE:

Development of Water Quality Objectives in the Atlantic Region.

DESCRIPTION

The long term objective of this project is to promote the use of Water Quality Objectives as a water quality management tool to all water resource managers and to provide assistance and direction in the development of Water Quality Objectives.

RESOURCES: ($'000)

	Total
TECH.	-
PY PROF.	1.1
TOTAL PY	1.1
SALARIES	40.5
O & M	3.0
CONTRACTS	-
CAPITAL	-
TOTAL $	43.5

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 8

PROJECT TITLE: SECRETARIAL AND CLERICAL SERVICES

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

Provision of secretarial and clerical services.

RATIONALE:

Provides support to WQB programs.

DESCRIPTION:

Secretarial and Clerical services.

RESOURCES: ($'000)

	Total
TECH. PY	2.0
PROF.	-
TOTAL PY	2.0
SALARIES	74.0
O & M	0.8
CONTRACTS	-
CAPITAL	6.8
TOTAL $	80.8

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 7

PROJECT TITLE: WQB MANAGEMENT OVERHEAD

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

1. Represent IWD and/or Branch at Regional and National meetings.
2. Prepare Plans, Appraisals, reports, etc. and answer inquiries.
3. Implementation of the WQB Human Resource Plan.
4. Effective Management of WQB's Financial Resources.
5. To review all IWD Research Subvention Proposals submitted to the Regional WQB Office.

RATIONALE:

To effectively manage WQB operations.

DESCRIPTION

Planning, control, and multi project oriented expenditures.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	2.7
SALARIES	100.0
O & M	64.0
CONTRACTS	-
CAPITAL	-
TOTAL $	164.0

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 9

PROJECT TITLE: NEGOTIATION OF FEDERAL/PROVINCIAL WATER QUALITY MONITORING AGREEMENTS

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

1. To complete the negotiation of the Canada/New Brunswick Water Quality Monitoring Agreement.

2. To initiate the negotiation of a Federal-Provincial Water Quality Monitoring Agreement with Nova Scotia.

RATIONALE:

In order to maximize both Federal and Provincial resources allocated to Water Quality studies in the Atlantic Provinces, water quality agreements will be negotiated which will eliminate duplication and enhance both the quality and quantity of the data collected, analyzed and interpreted.

DESCRIPTION

The long term objective of this project is to negotiate a Federal/Provincial Water Quality Monitoring Agreement with each province in the Atlantic Region by 1988.

RESOURCES: ($'000)

	Total
TECH.	-
PY PROF.	1.1
TOTAL PY	1.1
SALARIES	40.5
O & M	3.6
CONTRACTS	-
CAPITAL	-
TOTAL $	44.1

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 11

PROJECT TITLE: ELECTRONIC DEVELOPMENT AND SERVICING

NATIONAL PROGRAM NAME: Water Quality Management Data

ECS CODE: 1.3

GOALS:

To provide an electronic service for Branch projects.

RATIONALE:

Regional managers require data in a format which can be readily managed, manipulated and interpreted. To this end the data will be digitally stored and software and hardware provided for interpretive officers to work with.

DESCRIPTION:

Provide an electronic support and data processing service for Branch projects.

RESOURCES: ($'000)

	Total
TECH. PY	1.0
PROF.	-
TOTAL PY	1.0
SALARIES	37.0
O & M	4.6
CONTRACTS	-
CAPITAL	-
TOTAL $	41.6

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 12

PROJECT TITLE: REGIONAL OVERVIEW NETWORK

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

To co-ordinate the collection of bi-monthly ambient water quality data by the Water Resources Branch at 27 stations in Atlantic Canada comprising the Regional Overview Network.

RATIONALE:

Collection of water samples from 27 strategically located stations will provide an overview of water quality in the Atlantic Region.

DESCRIPTION:

This project will consist of collecting water samples every two months from 27 geographically strategic locations in the Atlantic Region and to have these samples analyzed for major ions, trace metals, nutrients plus any parameters of special concern during the sampling period. All samples will be collected by WRB technicians while co-ordination and logistic support will be handled by the WQB. Supplies in the form of sampling kits will be shipped from Moncton to the WRB district offices on the last day of the month preceeding the month samples are to be collected.

RESOURCES: ($'000)

	Total
TECH.	0.4
PY PROF.	-
TOTAL PY	0.4
SALARIES	15.0
O & M	2.0
CONTRACTS	-
CAPITAL	-
TOTAL $	17.0

Map No.	NAQUADAT NO.	Station Location
7	01NB01AF0005	St. John River @ Grand Falls Headpond approx. 150 m. above dam.
11	00NB01AJ0029	Meduxnekeag River @ Bridge above junction with Mill Stream, Belleville, N.B.
28	00NB01AP0002	Kennebecasis River @ Hwy 880 Bridge, Apohaqui, N.B.
18	00NB01AR0001	St. Croix River @ International Bridge, Milltown, N.B.
29	00NB01BJ0056	Restigouche River @ Rafting Ground Brook, N.B.
30	00NB01BK0026	Nepisiquit River @ Hwy 360, N.B.
31	00NB01B00001	S.W. Miramichi River @ Bridge, Blackville, N.B.
32	00NB02BQ0044	N.W. Miramichi River @ Hwy 430 Bridge, Wayerton, N.B.
33	00NB01BU0031	Petitcodiac River @ TCH Bridge, Petitcodiac, N.B.
23	00NS01DC0001	Annapolis River @ Bridge, Wilmot Station, N.S.
34	00NS01DG0008	Shubenacadie River @ Bridge, Elmsdale, N.S.
35	00NS01DN0001	Wallace River @ TCH Bridge, Wentworth Centre, N.S.
36	00NS01EE0001	Medway River @ Bridge, Charleston, N.S.
37	00NS01FØ0001	St. Mary's River @ Hwy 7 Bridge, Stillwater, N.S.
38	00NS01FB0001	N.E. Margaree River @ Bridge, Margaree Valley, N.S.
39	00NS01FJ0001	Salmon River @ Salmon River Bridge, N.S.
40	00PE01CA0001	Carruthers Brook @ Bloomfield Park North of St. Anthony, PEI

Map No.	NAQUADAT No.	Station Location
41	00PE01CB0001	Dunk River @ Wall Road, PEI
42	00PE01CD0003	Morell River @ Bridge west of Bangor, PEI
43	00NF02YC0001	Torrent River @ Bristol's Pool, Nfld.
44	00NF02YJ0001	Harry's River @ Black Duck, Nfld.
45	00NF02ZH0001	Piper's Hole River @ Mothers Brook, Nfld.
46	00NF02ZK0001	Rocky River @ Hwy 6 Bridge, Colinet, Nfld.
47	00NF02Y00001	Exploits River @ Price Mill Bridge, Grand Falls, Nfld.
48	00NF02YM0001	Indian River near Springdale, Nfld.
49	00NF03QC0001	Eagle River above Eagle Falls, Lab.
50	00NF030E0001	Churchill River @ Muskrat Falls, Lab.

Parameters

Field

Temperature

pH
DO

Laboratory

Temperature
pH
Turbidity
Alkalinity
Specfic Conductance
Colour
Calcium
Magnesium
Potassium
Sodium
Floride
Chloride
Sulfate

Phosphorus (Total)
Copper
Mercury
Zinc
Cadmium
Lead
Aluminum
Iron
Manganese
Dissolved Organic Carbon
Dissolved Inorganic Carbon
Nitrate & Nitrite
Ammonia
Nitrogen (Total)

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 10

PROJECT TITLE: ELECTRONIC DATA PROCESSING

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

1. Provide a regional EDP Service for various Directorate projects.

2. Provide data processing services for Branch projects.

RATIONALE:

Regional managers require data in a format which can be readily managed, manipulated and interpreted. Data will be digitally stored and appropriate hardware and software will be maintained and/or developed.

DESCRIPTION:

Provision of a regional EDP support service for various Directorate Projects.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	2.0 -
TOTAL PY	2.0
SALARIES	74.0
O & M	2.5
CONTRACTS	-
CAPITAL	43.0
TOTAL $	119.5

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 14

PROJECT TITLE: QUALITY ASSURANCE IN SUPPORT OF WATER QUALITY PROGRAMS

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

1. Follow laboratory quality assurance procedures to ensure generation of accurate and precise data on all water quality samples.
2. To follow a set of guidelines for the field activities in all WQB programs to ensure adequate quality control or assurance. This will allow easier interpretation of water quality data.

RATIONALE:

In support of other WQB projects.

DESCRIPTION:

a) Continue the use of laboratory quality control procedures to provide accurate and precise analysis of samples.
b) Continue a Q.C. protocol for all field programs employing standardized collection, preservation and storage techniques.

RESOURCES: ($'000)

	Total
TECH.	-
PY PROF.	0.3
TOTAL PY	0.3
SALARIES	11.0
O & M	-
CONTRACTS	-
CAPITAL	-
TOTAL $	11.0

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 15

PROJECT TITLE: SEDIMENT LABORATORY IN SUPPORT OF WATER RESOURCES BRANCH

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

On a timely basis, analyse samples for sediments collected by the WRB from 17 stations in the Region.

RATIONALE:

In support of Water Resources Branch.

DESCRIPTION

Provision of sediment determinations in water samples for Water Resources Branch.

RESOURCES: ($'000)

	Total
TECH. PY	0.5
PROF.	-
TOTAL PY	0.5
SALARIES	18.0
O & M	0.5
CONTRACTS	-
CAPITAL	-
TOTAL $	18.5

SITE NO.	STATION NO.	STATION LOCATION
1	01AP004	Kennebecasis at Apohaqui
2		Grand River
3		Dermis Stream
4	01DC005	Annapolis River at Wilmot
5	01DL001	Kelley River at Eight Mile Ford
6	01DP004	Middle River at Rocklin
7		Pembroke
8	01CE003	Brudenell River near Brudenell
9	01CB005	North Bank near Wall River
10	01CB004	Wilmot Rivernear Wilmot Valley
11	02ZM008	Waterford River at Kilbride
12	02YJ001	Harry's River below Hwy Bridge Highlands
13	02ZM006	Northwest Pond River at Northeast Pond
14		Coal Branch River at Beersville
15	01AL004	Narrows Mtn Brook
16	01B0001	Southwest Miramichi
17	02ZA002	Highlands R. & TCH

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER WQ-16

PROJECT TITLE: SHUBENACADIE BASIN STUDY

NATIONAL PROGRAM NAME: Toxic Chemicals

ECS CODE: 4.1

GOALS:

Assist NWRI in preparation of a scientific report describing the sources of arsenic and mercury contamination in the Shubenacadie Lakes system and the potential for producing harm to the ecosystem.

RATIONALE:

This study will dessiminate information on the impact, of a past industrial activity (Gold mining 1860-1930) and its waste dumps, on the water resource within the Shubenacadie Basin.

DESCRIPTION:

With NWRI complete further report on 1983-84 Shubenacadie Basin Study, and to assist in collecting and interpretation of biological samples contaminated with Hg and As.

RESOURCES: ($'000)

	Total
TECH.	-
PY PROF.	0.1
TOTAL PY	0.1
SALARIES	4.0
O & M	1.5
CONTRACTS	-
CAPITAL	-
TOTAL $	5.5

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 17

PROJECT TITLE: ORGANICS IN ATMOSPHERIC PRECIPITATION

NATIONAL PROGRAM NAME: Toxic Chemicals ECS CODE: 4.1

GOALS:

Obtain Data on the quantity of atmospheric contributions of toxic organic chemicals to the Inland Waters of Atlantic Canada.

RATIONALE:

Long distance transport through the atmosphere is an important pathway by which contaminants may disperse throughout the environment. Quantifying trace organic contaminants in precipitation may explain the widespread distribution of some anthropogenic chemicals in areas far removed from industrialized centres.

DESCRIPTION:

a) Collect wet-only precipitation samples (monthly) from sites in Kejimkujik National Park (N.S.), Ellerslie, P.E.I. and Jackson, N.S. and analyse all samples for PAH'S, OC's, PCB's and Chlorobenzenes.
b) By May 31, 1985, prepare summary report on 1984 data.

RESOURCES: ($'000)

	Total
TECH.	0.1
PY PROF.	0.1
TOTAL PY	0.2
SALARIES	7.0
O & M	1.0
CONTRACTS	-
CAPITAL	-
TOTAL $	8.0

MAP NO.	NAQUADAT NO.	STATION LOCATION
78	33NS01ED0004	Kejimkujik National PArk, N.S.
79	33PE01CA0001	Ellerslie Biological Station P.E.I.
77	33NS01DN0001	Jackson, Nova Scotia

Parameters

PAH's, OCS PCBs and Chlorobenzenes

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 18

PROJECT TITLE: CONDUCTING TOXIC CHEMICAL MEASUREMENT STUDIES IN THE ATLANTIC REGION

NATIONAL PROGRAM NAME: Toxic Chemicals ECS CODE: 4.1

GOALS:
1. Radioisotope background data for use by national WQB programs
2. Timely and accurate data and advisory inputs to Regional and National Toxic Chemicals Co-ordinating Committees.
3. To carry out Phase One of a Toxic Chemical Survey of Atlantic Region Municipal Water Supply Sources.
4. Preparation of a report on the 1984/85 Survey of the St. Paul River, which is on Labrador/Quebec Interprovincial Basin.
5. Measure agricultural pesticide residues in water, sediment and tissues in a basin in PEI, and metals in sediment and tissue in Mira River inhabitants in N.S.

RATIONALE: To measure and characterize toxic chemicals in the Region and to identify background levels and areas of elevated concentrations for management decisions.

DESCRIPTION: The studies will measure selected radioisotope levels at 5 sites; pesticide levels in water, sediments and biota from several locations within P.E.I. River Basins; heavy metals levels in waters and sediments from selected sites within Mira River system and Habitant River system; pesticide levels in ground water and unsaturated zones in P.E.I. acquifers in conjunction with NHRI; toxic chemical levels in 10 water supplies in N.B., Nfld. and N.S. plus 2 ground water supplies in P.E.I. Preparation of a report of 1984/85 study of the St. Paul River, which is a Labrador/Quebec transboundary stream.

RESOURCES: ($'000)

	Total
TECH.	3.8
PY PROF.	2.5
TOTAL PY	6.3
SALARIES	232.0
O & M	53.2
CONTRACTS	-
CAPITAL	40.0
TOTAL $	325.2

National Radioisotope Monitoring Program

MAP NO.	NAQUADAT NO.	STATION LOCATION
21	02NB01AQ0001	Moose Creek at Hwy 790 Bridge near Chance Harbour, St. John County, N.B.
22	02NB01BU0002	Peticodiac River at Gunningsville Bridge, Moncton, N.B.
23	00NS01DC0001	Annapolis River at Bridge, Wilmot, N.S.
24	00NS01FJ0020	McAskill Brook at Hwy Bridge on road to Birch Grove near Glace Bay
25	00NF03NG0004	Ranger Bight Brook outlet at Ranger Bight, 2 km West of Makkovik, Labrador

Site Sampled for Analyses

(i) Radioisotope - water 5 monthly

(ii) P.E.I. Pesticide Study - water (3 visits at 10 sites
- sediment (3 visits at 10 sites)
- biota (5 organisms at each sites)

(iii) Heavy Metals Study - water (1 visits at 10 sites)
- sediment (1 visit at 10 sites)
- biota (5 organisms at each site)

(iv) Ground water - water

(v) Water supplies - water (2 visits at 30 sites, 10-N.S., 10-N.B., 10-NFLD)

Parameters

*(ii) OC's, PCB, 2,4-D, 4,5-T, malathion, guthion, phorate, carbofuran, carboryl, aldicarb, atrazine

(iii) Hg, Cu, Pb, Zn, Cd, Fe, Mn, Al, ^{o}C

(iv) aldicarb, aldicarb sulfoxide, aldicarb sulfone,

(v) heavy metals, CB's, Chlorophenols

* On biota samples parameters will be OC's, PCB, malathion, guthion, phorate

STATION LISTING

Municipal Water Supply Survey

1985

New Brunswick

1.	01NB01BJ0015	Bathurst Water Supply - reservoir at treatment plant near intake (Source: Carter Brook and Middle River) Zone 20 E2991 N52767
	TREATED:	N.B. Dept. of Health, 350 St. George Street
2.	00NB01BJ0057	Belledune (Noranda) Water Supply - Jacquet River at pumping station Zone 19, E7223 N53092
	TREATED:	Belledune Fertilizer Plant (Fountain)
3.	01NB01BJ0016	Campbellton Water Supply - reservoir at intake (Source: Smith and Pritchard Lakes) Zone 19, E6741 N531655
	TREATED:	N.B. Dept. of Health, City Centre, Water Street
4.	00NB01AD0040	Clair Water Supply - reservoir below Thompson Lake Zone 19, E5284 N52348
	TREATED:	Municipal Office, Post Office Bldg., Main Street
5.	01NB01BJ0017	Dalhousie Water Supply - Charlo River Reservoir at dam Zone 19, E69805 N531565
	TREATED:	Dalhousie Fire Station
6.	01NB01BU0002	Moncton Water Supply - Turtle Creek Reservoir at intake Zone 20, E3533 N50958
	TREATED:	Highfield Pumping Station, Highfield Street
7.	00NB01AØ0004	Oromocto Water Supply - Saint John River at public landing just below Burton Bridge (sample collected 2.1 km below intake)
	TREATED:	Waasis Road Irving, 500 Waasis Road

8.	00NB01AH0007	Plaster Rock Water Supply - Tobique River at intake Zone 19, E6226 N51971
	TREATED:	Village Garage, Main Street
9.	01NB01BV0017	Saint John Water Supply - Latimer Lake near pumphouse
	TREATED:	Jones Restaurant and Variety, Lakewood
10.	01NB01AP0008	Saint John Water Supply - Spruce Lake near intake
	TREATED:	Ernie's Esso, Ocean Westway near Hwy 7 - St. Stephen intersection

STATION LISTING

Municipal Water Supply Survey

1985

Nova Scotia

1.	01NS01EJ0037	Dartmouth Water Supply - Lemont Lake (Lake Major) near intake to water treatment plant (at Hwy 7) Zone 20 E4587 N49481
	TREATED:	Dartmouth Water Treatment Plant (Laboratory tap)
2.	00NS01DG0058	Enfield Water Supply - Shubenacadie River near intake of water treatment plant Zone 20 E4516 N497565
	TREATED:	Enfield Water Treatment Plant (Laboratory tap)
3.	00NS01DG0057	Lantz Water Supply - Shubenacadie River near intake of water treatment plant Zone 20 E46245 N498055
	TREATED:	Lantz Water Treatment Plant (tap)
4.	01NS01EG0003	Mahone Bay Water Supply - reservoir at treatment plant intake Zone 20 E38845 N492275
	TREATED:	Mahone Bay Town Hall
5.	01NS01FJ0026	New Waterford Water supply - Kilkenny Lake near treatment plant intake Zone 20 E72065 N51210
	TREATED:	New Waterford Water Treatment Plant
6.	01NS01FA0001	Port Hawkesbury Water Supply - Landrie Lake from overflow at pumping station intake 61°19'21" 45°35'10"
	TREATED:	Port Hawkesbury Water Treatment Plant
7.	01NS01EC0006	Shelburne Water Supply - Rodney lake, near intake to water treatment plant Zone 20 E31705 N484495
	TREATED:	Shelburne Water Treatment Plant

8.	00NS01DP0011	Stellarton water supply - East River near intake of treatment plant Zone 20 E52635 N504365
	TREATED:	Stellarton Vocational School
9.	01NS01FJ0025	Sydney Water Supply - reservoir near intake Zone 20 E71835 N51094
	TREATED:	Provincial Bldg., Sydney
10.	01NS01EA0002	Yarmouth Water Supply - Lake George near treatment plant intake (15 km NE of Yarmouth)
	TREATED:	Yarmouth Water Treatment Plant

STATION LISTING

Municipal Water Supply Survey

1985

Newfoundland

1.	01NF02ZG0005	Marystown Water supply - Linton Lake at intake to treatment plant Zone 21, E64115 N52287
	TREATED:	Cold water tap, Mortier Motel in Marystown
2.	00NF02ZG0021	Grand Bank Water Supply - Grand Bank Brook at dam at intake Zone 21 E59335 N52142
	TREATED:	Cold water tap, Granny's Motor Inn, Grand Bank
3.	00NF02ZG0022	Rushoon Water Supply - Big Pond Brook at dam at intake Zone 21 E657 N52461
	TREATED:	Cold water tap, Charlie Dick's residence, Rushoon
4.	00NF02ZG0023	St. Lawrence Water Supply - St. Lawrence River at dam near intake Zone 21 E6218 N520095
	TREATED:	Cold water tap, St. Lawrence Municipal Centre, St. Lawrence
5.	00NF02ZK0004	Arnold's Cove Water Supply - Unnamed Brook at dam at intake Zone 21 E2786 N529465
	TREATED:	Cold water tap, Tanker Inn, Arnold's Cove
6.	01NF02ZK0006	Dunville Water Supply - Wyse's Pond at outlet to treatment plant Zone 22 E2812 N5240
	TREATED:	Cold water tap, Northeast Arm Motel, Dunville
7.	01NF02ZL0002	Harbour Grace Water Supply - Bannerman Lake at outlet to treatment plant Zone 22 E32885 N52829
	TREATED:	Cold water tap, Canada Employment Centre, Harbour Grace

8.	01NF02ZL0003	Hearts Desire Water Supply - Terrence Pond at outlet to treatment plant Zone 22 E31885 N52979
	TREATED:	Cold water tap, Patrick Whalen residence, Heart's Desire
9.	01NF02ZM0031	St. John's Water Supply - Windsor Lake near intake near Thorburn Road Zone 22 E3626 N52703
	TREATED:	Cold water tap, Elizabeth Towers Bldg., Elizabeth Avenue, St. John's, Nfld.
10.	00NF02ZN0001	Trepassey Water Supply - Northeast Brook near intake to pumping station Zone 22 E3205 N51818
	TREATED:	Cold water tap, Molloy's Convenience Store, Trepassey, Nfld.

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER WQ-19

PROJECT TITLE: KEJIMKUJIK BASIN LRTAP SURVEY

NATIONAL PROGRAM NAME: Long Range Transport of Air Pollutants

ECS CODE: 4.2

GOALS:

1. Continuation of Winter and Spring Water and Snow Quality Sampling to provide data for the construction of model predicting pH depressions.

2. Continuation of long-term monitoring of CWS sites during the summer.

RATIONALE:

Part of the Canada-USA Memoradum of Intent on Acid Precipitation calls for long-term trend monitoring.

DESCRIPTION:

To study pathways of sulfur and nitrogen in an acidified brown-water basin in Nova Scotia.

at 6 sites (a) 400 samples for major ions and metals (Al, Fe,Mn)
(b) 120 samples for Al

RESOURCES: ($'000)

	Total
TECH.	1.8
PY PROF.	0.8
TOTAL PY	2.6
SALARIES	96.0
O & M	25.0
CONTRACTS	-
CAPITAL	-
TOTAL $	121.0

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ ATL
PROJECT NUMBER 20

PROJECT TITLE: LRTAP LAKE AND STREAM MONITORING

NATIONAL PROGRAM NAME: Long Range Transport of Airborne Pollutants

ECS CODE: 4.2

GOALS:

Water quality data for use in determining long term LRTAP trends in lakes and streams.

RATIONALE:

Part of the Canada-U.S.A. Memorandum of Intent on Acid Precipitation calls for long term trend monitoring and part calls for development and calibration of acid dose/response models.

DESCRIPTION

To sample 78 lakes in Atlantic Canada to detect trends in acid precipitation parameters and monitor the water quality of 27 streams in the Atlantic Region for long-term trend detection.

RESOURCES: ($'000)

	Total
TECH.	1.8
PY PROF.	1.1
TOTAL PY	2.9
SALARIES	106.0
O & M	4.0
LRTAP III	100.0
CONTRACTS	-
CAPITAL	21.0
TOTAL $	231.0

* includes A-Base 6.0 and LRTAP III 15.0

Map. No.	NAQUADAT No.	Station Location
		Nova Scotia
36	00NS01EE0001	Medway River
62	00NS01EC0001	Roseway River
63	00NS01EA0001	Tusket River
64	00NS01EN0002	Liscomb River
65	00NS01EF0002	Lahave River
37	00NS01EØ0001	St. Mary's River
66	00NS01DE0001	Avon River at Power Dam
67	00NS01DL0009	Kelly River
35	00NS01DN0001	Wallace River
68	00NS01DA0001	Meteghan River
69	00NS01ER0002	Clam Harbour River
60	00NS01ED0005	Mersey River
61	00NS01ED0030	Rogers Brook
59	00NS01EE0015	Whiteburn Brook
		New Brunnswick
70	00NB01AQ0001	Lepreau River
71	00NB01BV0015	Ponte Wolfe River
72	00NB01AN0003	Salmon River at Gaspereaux Forks
73	00NB01AM0001	North Branch Oromocto River
		Prince Edward Island
41	00PE01CB0001	Dunk River
40	00PE01CA0001	Mill River
		Newfoundland and Labrador
74	00NF02ZB0001	Isle aux Morts River
43	00NF02YC0001	Torrent River @ Bristol's Pool
44	00NF02YJ0001	Harry's River @ Black Duck
45	00NF02ZH0001	Piper's Hole River @ Mother's Brook
46	00NF92ZK0001	Rocky River @ Colinet
47	00NF02YØ0001	Exploits River @ Price Mill
48	00NF02YM0001	Indian Brook @ Springdale
75	00NF02ZD0003	Grey River @ CWS Gauge
51	00NF02ZG0016	Garnish River
52	00NF02ZC0001	Grandy Brook
49	00NF03QC0001	Eagle River above Eagle Falls
50	00NF03ØE0001	Churchill River at Muskrat Falls

Map. No.	NAQUADAT No.	Station Location
	Acid Precipitation Sampling in Newfoundland	
87	01NF02YH0001	Wigwam Pd
88	01NF02YK0006	Center of Glover Island
89	01NF02YM0001	East of Adies Pd
90	01NF02YM0001	Near Noble Pd
91	01NF02YM0003	North of Upper Indian Pd
92	01NF02YM0006	Near Middle Arm
93	01NF02YM0007	N.W. of Burlington
94	01NF02YN0008	Sandy Lake S.W. of Buchans
95	01NF02YØ0007	Gull Lake
96	01NF02YO009	Tally Pond
97	01NF02YQ0001	Bellman's pd
98	01NF02YR0005	Near Ocean Pd and T.M. Pd
99	01NF02YS0003	Rattle Pd
100	01NF02YS0005	Shallow Pd #3
101	01NF02YS0009	Ochre Hill Pd
102	01NF02YS0010	Chatman Pd W.
103	01NF02YS0016	Nameless Pd #2
104	01NF02YS0021	Bog Pd
105	01NF02YS0029	Long Waters S.
106	01NF02YS0045	Jay Pond
107	01NF02YS0048	Mosses Cove Pd
108	01NF02ZB0001	Big Pond
109	01NF02ZC0002	Near Knowle's Bk
110	01NF02ZC0003	Stephenson's Pd
111	01NF02ZD0001	Near Dolland Bk
112	01NF02ZD0002	Pd W. of Wolf Lake
113	01NF02ZF0003	Pd N. of Gisbourne L.
114	01NF02ZF0004	Hungry Grove Pd
115	01NF02YH0011	Unnamed Pd. Gros Morne at Nat. Park
116	01NF02YH0012	Unnamed Pd. Gros Morne at Nat. Park
117	01NF02YH0013	Unnamed Pd. Gros Morne at Nat. Park
118	01NF02YH0014	Unnamed Pd. Gros Morne at Nat. Park
119	01NF02YL0015	Unnamed Pd. Gros Morne at Nat. Park
120	01NF02YH0010	Unnamed Pd. Gros Morne at Nat. Park

Map No.	NAQUADAT No.	Station Location
		Acid Precipitation Lake Sampling in Southwestern Nova Scotia
121	01NS01ED0001	Back Lake in middle
122	01NS01ED0002	Big Dam West Lake in middle
123	01NS01ED0003	Big Dam East Lake in middle
124	01NS01ED0004	Mountain Lake in centre of north part
125	01NS01ED0005	Peskowesk Lake N.W. of tip of Isle de l'Original
126	01NS01ED0006	Grafton Lake in centre
127	01NS01ED0007	Kejumkujik Lake 200 m. S.W. of Peale Island
128	01NS01ED0008	High Lake in middle
129	01NS01ED0010	Pebbleloggitch Lake in middle
130	01NS01ED0011	Coblielle Lake in middle
131	01NS01ED0013	Ben Lake in middle
132	01NS01ED0014	Big Red Lake
133	01NS01ED0015	Mud Lake in middle
134	01NS01ED0016	Snake Lake in middle
135	01NS01ED0017	Liberty Lake in middle
136	01NS01ED0019	Frozen Ocean Lake in middle
137	01NS01ED0020	Central Lake
138	01NS01ED0021	Little Red Lake at S.E. side
139	01NS01ED0022	Poplar Lake in middle
140	01NS01ED0025	Luxion Lake in middle
141	01NS01ED0027	Beaverskin Lake in middle of west part
142	01NS01ED0028	McGinty Lake in middle
143	01NS01ED0029	Peskawa Lake in middle
144	01NS01ED0030	Upper Silver Lake in middle of South basin
145	01NS01ED0043	Mount Tom lake - Kej. Nat'l Park
146	01NS01ED0047	George Lake - Kej. Nat'l Park
147	01NS01ED0048	Loon Lake - Kejimkujik Nat. Park
148	01NS01EA0010	Trefry Lake 300 m N.N.E. of outlet
149	01NS01EA0011	Allens Lake
150	01NS01EA0013	Milton Lake just North of centre
151	01NS01EA0014	Churchill Lake about 300 m. S.W. of inlet
152	01NS01EA0016	Darling lake 300m S. of inlet from Coggins Lake
153	01NS01EA0002	Lake George, 15 km N.E. of Yarmouth (water supply)
154	01NS01EA0004	Jesse Lake, Yarmouth Co.
155	01NS01EA0005	Doctor Lake 300 m S.W. of large island
156	01NS01EA0009	Brenton Lake near centre
157	01NS01DA0002	Tedford Lake, Digby Co.
158	01NS01DA0003	Killam Lake 250 m. N.W. of inlet from Lake George
159	01NS01DA0004	Cedar lake 100 mg. S.W. of large point at N. end
160	01NS01DA0005	Lower Corning lake 550 m S.E. of Corning Brook
161	01NS01DA0006	Pierce Lake 175 m. W. of N.E. Shore
162	01NS01DA0007	Coggins Lake about 300 m. N. of Southern Shore
163	01NS01EA0019	Snarl Lake 440 m. N.E. of N.W. outlet
164	01NS01EA0020	Bird lake about 200 m. E. of N.W. Shore

Parameters

Major ions includign I.C., SO_4
Nutrients, N, C, P
Metals, Pb, Zn, Cd, Fe, Mn, Al (species)

Pb, Zn analysis for 20 strata of 6 sediment cores - 120 samples

Cu analysis in 20 sediment strata of 2 lakes - 40 samples

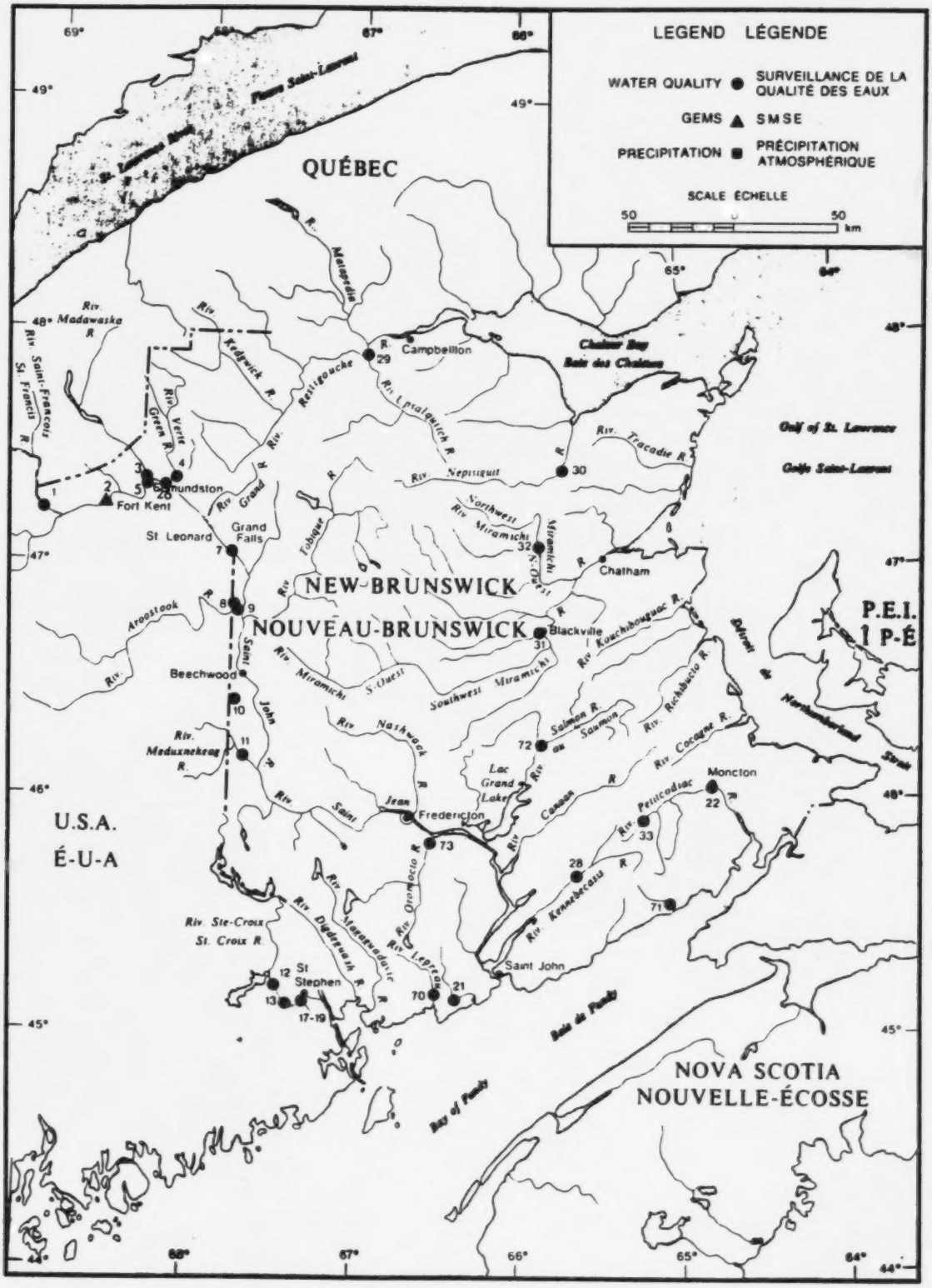


FIGURE 1 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

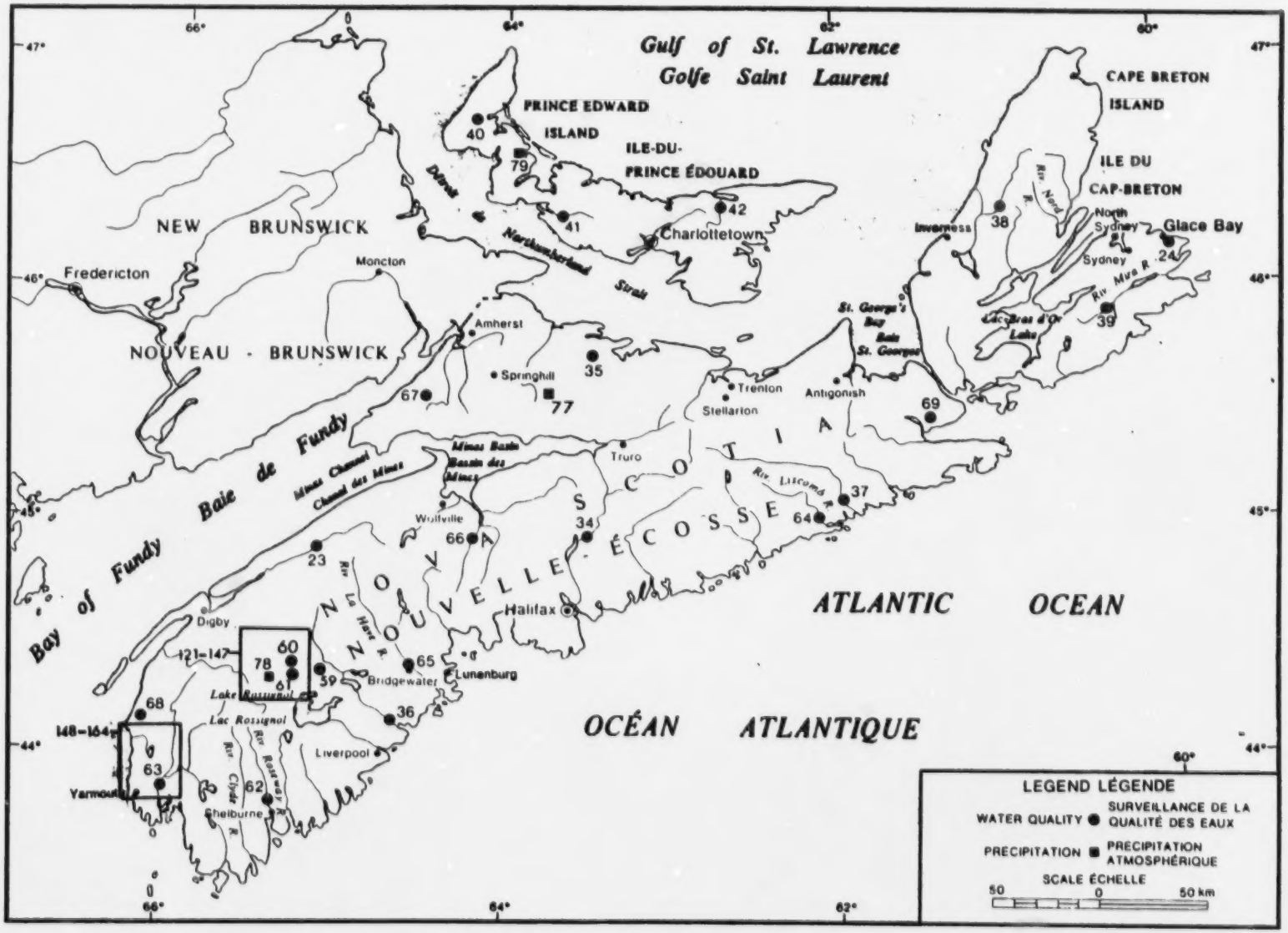


FIGURE 2 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

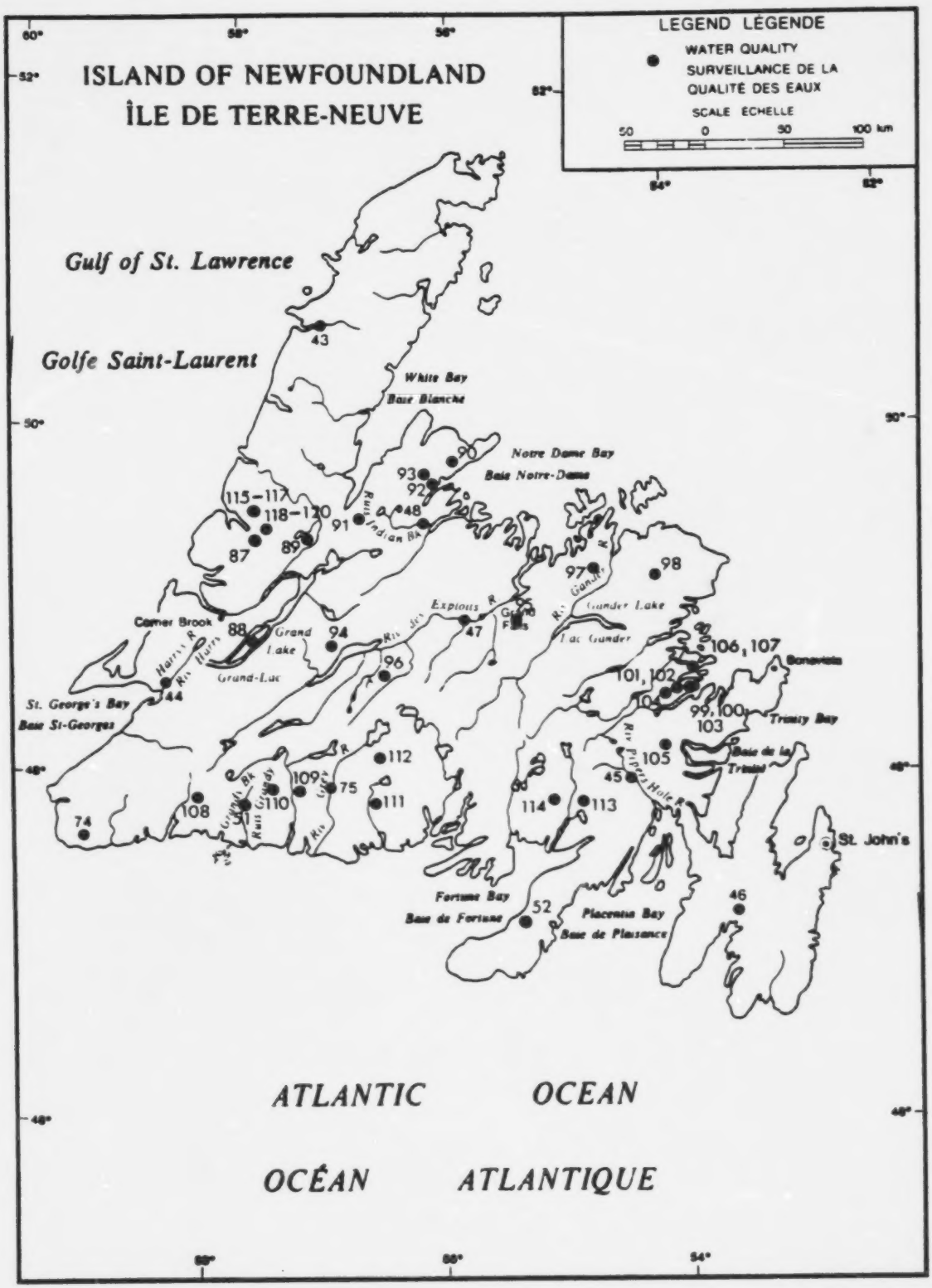


FIGURE 3 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

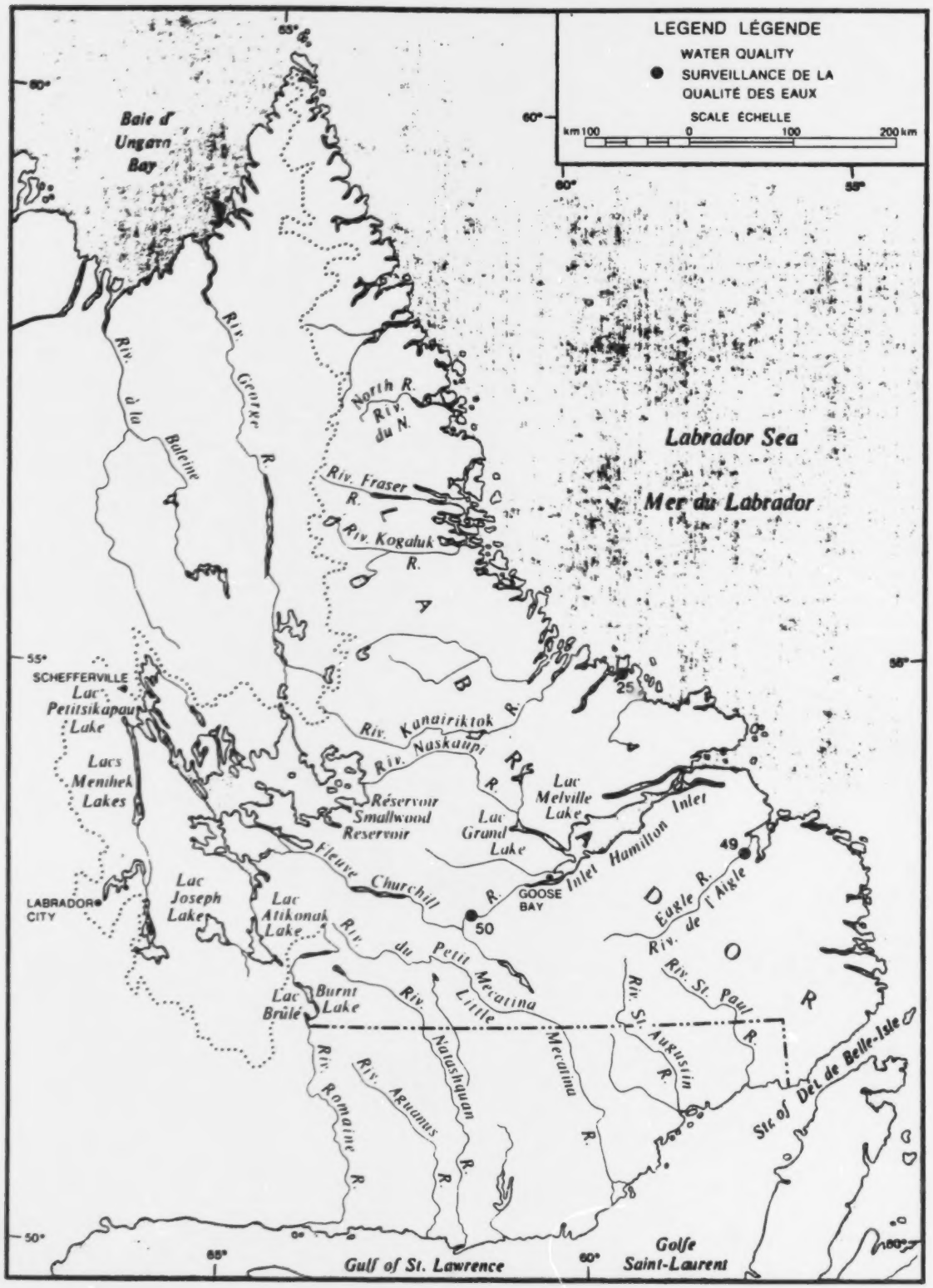


FIGURE 4 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

D.2 Région du Québec

QUEBEC REGION

DESCRIPTION DU PROJET
WATER QUALITY BRANCH
1985/86

REGION Québec
NO DU PROJET 1

TITRE DU PROJET: OBJECTIF DE QUALITE DE L'EAU DE LA RIVIERE DES OUTAOUAIS

NOM DU PROGRAMME NATIONAL: Gestion des eaux Canado-américaine et eaux relevant de plusieurs compétences

CODE DU SCE: 1.1

BUT: Soutien approprié à l'élaboration des objectifs de qualité de l'eau de la rivière des Outaouais.

FONDEMENTS: Le comité de coordination sur la qualité de l'eau de la rivière des Outaouais regroupe depuis quelques années déjà des représentants fédéraux et provinciaux. Leur mandat est de définir certains objectifs de qualité de l'eau en fonction des divers usages de la rivière.

DESCRIPTION DU PROJET: Participer à un comité technique de travail chargé entre autre de développer ou d'évaluer les objectifs fixés pour la qualité de l'eau.

RESOURCES: ($'000)

	Total
A-P techn.	0
A-P prof	0,1
A-P TOTAL	0,1
TRAITEMENTS:	3,5
FONCTIONNEMENT	0,6
CONTRATS	--
INVESTISSEMENT	--
TOTAL$	4,1

DESCRIPTION DU PROJET
WATER QUALITY BRANCH
1985/86

REGION Québec
NO DU PROJET 6

TITRE DU PROJET: RESEAU TDPA (LRTAP)

NOM DU PROGRAMME NATIONAL: Gestion des données sur la qualité des eaux — CODE DU SCE: 1.1
Transport à distance des polluants atmosphériques — CODE DU SCE: 4.2

BUT: Contribuer à exercer une surveillance de l'évolution de l'acidification des eaux de surface au Québec et à déceler des modifications éventuelles de cette évolution suite à réduction d'émissions à la source.

FONDEMENTS: Les inventaires physico-chimiques réalisés depuis 1980 dans les cours d'eau du Québec par divers organismes (DGEI-Q, Pêches et Océans, INRS-Eau, MENVIQ) ont démontré que le Québec est particulièrement vulnérable aux précipitations acides. Le réseau TDPA est en place depuis Juin 1983 et il a été planifié par le programme de Planification et Gestion de la DGEI-Q. Il est opéré depuis avril 1985 par le personnel de la Qualité de l'eau.

DESCRIPTION DU PROJET:

1) Opérer un réseau d'échantillonnage mis en place depuis Juin 1983; échantillonner 6 fois 12 stations temporelles et 2 fois 23 stations spatiales.
2) Effectuer au laboratoire régional (Longueil) les analyses de 118 échantillons récoltés pour les tests physiques, les ions majeurs et les éléments nutritifs.
3) Faire les analyses par le laboratoire central (Burlington) les 118 échantillons récoltés pour les métaux lourds.
4) Valider les résultats d'analyse et les acheminer dans la base de donnée NAQUADAT.
5) Participer au programme d'études comparatives inter-laboratoires du C.C.E.I. pour les projets sur les précipitations acides.

RESOURCES: ($'000)*

	Total
A-P techn.	
A-P prof	
A-P TOTAL	0,9
TRAITEMENTS:	31,4
FONCTIONNEMENT	70,0
CONTRATS	--
INVESTISSEMENT	--
TOTAL$	101,4

Les années-personnes proviennent du programme 1,3 alors que les dépenses de fonctionnement proviennent du programme 4,2

Réseau du transport à distance des polluants atmosphérique -
Localisation des stations échantillonnées en 1985-86

NO. NAQUADAT	DESCRIPTION
01QU02LH0185	Lac Bohème (S)
01QU02LH0186	Lac Clair (S)
01QU02LH0187	Lac Duck (S)
01QU02LF004	Las Sheridan
01QU02LF0002	Lac David (T)
01QU02LF0003	Lac Graham (S)
01QU02LD0004	Lac des Papillons (S)
01QU02LD0010	Lac Kidney
01QU02LD0005	Lac Blais
01QU02LD0008	Lac Griffin (S)
01QU02LD0011	SN 19222
01QU02LD0009	Lac Chevreuil (T)
01QU02LC0016	Lac General White
01QU02NF0001	Lac Adanys (S)
01QU020B0002	Lac Laurent (S)
01QU02LC0015	Lac Truite Rouge
01QU02NF0002	Lac S.N. 36724 (S)
01QU02NF0005	Lac Nolette
01QU020C0002	Lac Joncs (S)
01QU02NE0001	Lac Fauvette (S)
01QU02NE0003	Lac Thibert (S)
01QU02NE0002	Lac S.N. 92844 (S)
01QU02NF0003	Lac Eclair (T)

Réseau du transport à distance des polluants atmosphérique -
Localisation des stations échantillonnées en 1985-86 (suite)

NO. NAQUADAT	DESCRIPTION
01QU02NE0003	Lac Chômeur (T)
01QU02PB0002	Lac Najoua (S)
01QU02PA0002	Lac Congré (S)
01QU02PB0003	Lac Lagou (T)
01QU02RG0001	Lac Daniel (S)
01QU02RG0002	Lac Lemaine (T)
01QU02PB0005	Lac Josselin
01QU02PB0004	Lac Veilleux (S)
01QU02PC0001	Lac Bonneville (T)
01QU02PD0002	Lac McLeod (S)
01QU02PF0001	Lac S.N. 35759 (S)
01QU02RH0001	Lac Thomas

DESCRIPTION DU PROJET
DIRECTION DE LA QUALITE DES EAUX
1985/86

REGION Québec
NUMERO
DU PROJET _____

TITRE DU PROJET: Entente Canada/Québec sur la qualité de l'eau

NOM DU PROGRAMME NATIONAL: Gestion des données sur la qualité de l'eau. CODE DU SCE 1.3

BUT: Mise en oeuvre et administration de l'entente CANADA/QUEBEC sur la surveillance continue de la qualité du milieu aquatique.

FONDEMENTS: L'entente sur la qualité de l'eau prévoit la concertation entre les deux gouvernements dans la surveillance de la qualité du milieu aquatique. L'entente permet également d'assurer un partage des coûts d'exploitation pour les stations dites d'intérêt fédéral-provincial.

En 1985/86, l'échantillonnage dans le cadre de l'entente couvrira au total 280 stations, dont 95 sont fédérales-provinciales, 102 sont fédérales et 83 sont provinciales.

DESCRIPTION DU PROJET:

1) Participer aux réunions du comité de coordination de l'entente (minimum 3 réunions par année).

2) Assurer le secrétariat du comité de coordination de l'entente et rédiger un rapport annuel pour le 31 août 1985.

3) Assurer l'échange avec la province des résultats d,échantillonnage faisant partie de l'entente (a réaliser conjointement avec l'administration centrale).

4) Examiner, avec les représentants d'Environnement-Québec, les données disponibles dans les deux ministères pour évaluer la qualité générale du milieu aquatique dans le bassin versant supérieur de la rivière Richelieu, près de la frontière Canado-Américaine.

RESSOURCES ($'000)

A - P TECHN:	0
A - P PROF:	1,2
A - P TOTAL:	1,2
TRAITEMENTS:	41,9
FONCTIONNEMENT:	7,0
CONTRATS:	----
INVESTISSEMENTS:	----
TOTAL:	48,9

Tableau B-2. LOCALISATION DES STATIONS FEDERALES-PROVINCIALES (1984-1985)

a) RESEAU-RIVIERES (Programmes 10001 et 10002)

Numéro de la station n° NAQUADAT	n° BQMA	Description de la station	Coordonnées UTM Zone	Est	Nord
00PQ01BD0003	01150003	Rivière Matapédia au pont Mercier à Matapédia	19	653200	5315300
00PQ01BD0004	01150004	Rivière Matapédia au pont, route à 2 km en amont du lac au Saumon	19	621150	5366100
00PQ01AD0001	01170001	Rivière Madawaska au pont, route à Dégelis	19	527250	5266200
00PQ02PJ0005	02340004	Rivière Chaudière au pont, route à Notre-Dame-des-Pins	19	367500	5115500
00PQ02PJ0007	02340006	Chaudière au pont, en amont de la Drolet, au sud-ouest de Saint-Ludger	19	360900	5061050
00PQ02PJ0016	02340033	Rivière Chaudière, à l'usine de filtration d'eau de Charny	19	325900	5172400
00PQ02PJ0015	02340014	Rivière Chaudière au pont, route 171 à Scott	19	340900	5151900
00PQ02ØF0005	03020031	Rivière Saint-François au pont, route 132 à Pierreville	18	668900	5103650
00PQ02ØF0002	03020035	Rivière Saint-François au pont, route 143 à Bromptonville	19	270100	5039900

Tableau B-2. LOCALISATION DES STATIONS FEDERALES-PROVINCIALES, 1984-1985 (suite)

a) Réseau-rivières (Projets 10001 et 10002)

Numéro de la station n° NAQUADAT	n° BQMA	Description de la station	Coordonnées UTM Zone	Est	Nord
00PQ02ØE0028	03020037	Rivière Magog au pont, route 55 à l'est de Magog	18	727250	5017250
00PQ02ØE0031	03020040	Rivière Saint-François, en amont de la Massawippi, au pont, route à Lennoxville	19	277000	5027500
00PQ02ØF0023	03020081	Rivière Saint-François au pont, route 116 à Richmond	18	722500	5059750
00PQ02ØE0061	03020082	Rivière Massawippi au pont de la rue Massawippi à Lennoxville	19	276300	5026700
00PQ02ØE0062	03020083	Rivière Saint-François au barrage hydro-électrique au sud de Weedon-centre	18	308100	5059200
00PQ02ØJ0006	03040007	Rivière des Hurons au pont à 8 km de son embouchure avec le Richelieu près de Saint-Mathias	18	641750	5038850
00PQ02ØJ0008	03040009	Rivière Richelieu à l'usine de filtration de Sorel	18	644800	5097300
00PQ02ØJ0909	03040010	Rivière Richelieu au barrage de l'île Sainte-Marie au nord de Saint-Jean-sur-Richelieu	18	636650	5028200
00PQ02ØJ0910	03040012	Rivière Richelieu au pont du CN à l'est de Lacolle	18	631250	4990900

Tableau B-2. LOCALISATION DES STATIONS FEDERALES-PROVINCIALES, 1984-1985 (suite)
a) Réseau-rivières (Projets 10001 et 10002)

Numéro de la station n° NAQUADAT	n° BQMA	Description de la station	Coordonnées UTM Zone	Est	Nord
00PQ02ØJ0011	03040013	Rivière L'Acadie au pont à 1,1 km en amont du ruisseau Robert au sud-ouest de Carignan	18	628700	5031950
00PQ02ØH0002	03040015	Rivière Aux Brochets au pont, route 133 à Pike River	18	651800	4998250
00PQ02ØJ0014	03040017	Rivière Richelieu à la traverse de Saint-Charles-sur-Richelieu	18	641000	5061150
00PQ02ØA0001	03090001	Rivière Châteauguay au pont, route 205 au nord de Sainte-Martine	18	593900	5015200
00PQ02ØA0002	03090002	Rivière des Anglais au pont, route à Howick	18	590700	5003700
00PQ02ØA0003	03090003	Rivière Châteauguay au pont à Dewittville	18	571200	4995700
00PQ02ØA0005	03090005	Rivière Châteauguay à 1,6 km en aval du pont de Powerscourt	18	565700	4985100
00PQ02LC0053	04020001	Rivière Rouge, au pont, route 148 à l'ouest de Calumet	18	524100	5054300
00PQ02LD0001	04040001	Rivière de la Petite Nation, au pont, route 148 à l'ouest de Plaisance	18	490050	5049500
00PQ02LF0005	04060004	Rivière du Lièvre, au pont, route à Buckingham	18	467300	5047900
00PQ02LH0004	04080003	Rivière Gatineau au pont, route en amont du ruisseau Chelsea au nord de Gatineau	18	441450	5037100

Tableau B-2. LOCALISATION DES STATIONS FEDERALES-PROVINCIALES, 1984-1985 (suite)
a) Réseau-rivières (Projets 10001 et 10002)

Numéro de la station n° NAQUADAT	n° BQMA	Description de la station	Coordonnées UTM Zone	Est	Nord
00PQ02LH0005	04080005	Rivière Gatineau au pont, route 107 à Maniwaki	18	425650	5136850
00PQ02KG0002	04130002	Rivière Coulonge, au pont, route 18 à Fort Coulonge	18	365700	5078650
00PQ02JB0002	04300002	Rivière Kinojevis au pont, route 117 à l'est de McWatters	17	658700	5341400
00PQ02JB0003	04300003	Rivière Beauchastel au pont, route à 1 km de son embouchure avec le lac La Bruère	17	650500	5335950
00PQ02LB0002	04310002	Rivière des Outaouais au barrage de Carillon	18	548100	5046000
00PQ02KC0002	04310008	Rivière des Outaouais au barrage Chenaux à Portage-du-Fort	18	369300	5049000
00PQ02JE0003	04310009	Rivière des Outaouais au pont, route 101 à Temiscaming	18	645150	5174650
00PQ02JC0001	04310010	Rivière Des Outaouais au pont, route 101 à Notre-Dame-du-Nord	17	613900	5271550
00PQ02LA0002	04310011	Rivière des Outaouais à la traverse de Masson	18	467900	5040900
00PQ02NG0004	05010007	Rivière Saint-Maurice à l'usine de filtration de Trois-Rivières	18	683750	5139050
00PQ02NG0007	05010012	Rivière Shawinigan à 0,2 km de son embouchure avec le Saint-Maurice à Shawinigan	18	671150	5156300

Tableau B-2. LOCALISATION DES STATIONS FEDERALES-PROVINCIALES, 1984-1985 (suite)
a) Réseau-rivières (Projets 10001 et 10002)

Numéro de la station n° NAQUADAT	n° BQMA	Description de la station	Coordonnées UTM Zone	Est	Nord
00PQ02NE0004	05010013	Rivière Saint-Maurice au barrage de La Tuque	18	665850	5256800
00PQ02NG0008	05010014	Rivière Saint-Maurice au pont, route 157 à Shawinigan	18	672150	5055950
00PQ02PC0002	05080001	Rivière Jacques-Cartier au pont, route à Sainte-Catherine	19	300200	5191300
00PQ02PC0006	05080006	Rivière Jacques-Cartier au pont, route à l'embouchure à Donnacona	19	289550	5172900
00PQ02ØB0003	05220003	Rivière L'Assomption au pont, route à Le Gardeur	18	619100	5067300
00PQ02ØB0004	05220004	Rivière L'Assomption au pont, route à 0,6 km en amont de la Ouareau à l'est de Crabtree	18	623800	5088900
00PQ02ØB0005	05220005	Rivière de l'Achigan à l'est de l'Epiphanie au pont, route à 1 km de son embouchure avec l'Assomption	18	620400	5078150
00PQ02ØB0012	05220012	Rivière Ouareau à l'est de Crabtree au pont, route à 1,9 km de son embouchure avec L'Assomption	18	622850	5089750
00PQ02ØB0032	05220032	Rivière Ouareau au pont, route 341 en amont du lac Pontbriand à l'ouest de Rawdon	18	591650	5100550
00PQ02RC0002	06220001	Rivière Péribonca au pont, route 169 à Sainte-Monique	19	290000	5402700

Tableau B-2. LOCALISATION DES STATIONS FEDERALES-PROVINCIALES, 1984-1985 (suite)
a) Réseau-Rivières (Projets 10001 et 10002)

Numéro de la station n° NAQUADAT	n° BQMA	Description de la station	Coordonnées UTM Zone	Est	Nord
00PQ02RH0028	06290002	Rivière Saguenay au pont, route à Chicoutimi	19	346850	5366250
00PQ02TE0001	07100001	Rivière aux Outardes à la centrale Outardes-2 à Chute-aux-Outardes	19	544500	5442000
00PQ02UC0003	07230003	Rivière Moisie au pont, route 138 au nord de Moisie	19	711600	5572200
00PQ03AC0008	08070027	Rivière Bell au pont, route à Senneterre	18	334400	5361550
00PQ03AC0009	08070028	Rivière Bell au pont, route 113 à Rapide-des-Cèdres	18	349100	5430500

Tableau B-2. LOCALISATION DES STATIONS FEDERALES-PROVINCIALES,

b) Réseau-lacs (Projet 10003)

Numéro de la station n° NAQUADAT	n° BQMA	Année d'échantillonnage	Description de la station (bassin versant)	Coordonnées UTM Zone	Est	Nord
01PQ03AA0002	08070073	(85)	Lac C7949 (Nottaway)	18	522000	5574150
01PQ03AC0004	08070035	B	Lac Cuvillier (Nottaway)	18	386200	5416450
01PQ03AC0005	08070032	B	Lac des Ormeaux (Nottaway)	18	414800	5335150
01PQ03AD0003	08070036	B	Lac MacIvor (Nottaway)	18	290400	5520400
01PQ02RA0005	06220013	(85)	Lac Le Bausais (Péribonka)	19	344200	5641800
01PQ02TD0001	07100007	(85)	Lac Forton (Outardes)	19	403800	5765600
01PQ02RA0004	06220015	(85)	Lac C7944 (Péribonka)	19	364000	5712700
01PQ02TD0002	07100006	(85)	Lac Brue (Outardes)	19	411600	5673300
01PQ02TD0003	07100003	(85)	Lac C7948 (Outardes)	19	418500	5751800
01PQ02TD0004	07100010	(85)	Lac 20331 (Outardes)	19	466000	5661600
01PQ02TD0005	07100005	(85)	Lac Aubin-Tellier (Outardes)	19	406500	5711500
01PQ02TD0006	07100009	(85)	Lac 20339 (Outardes)	19	459000	5679800
01PQ02TD0007	07100004	B	Lac du Castor Noir (Outardes)	19	383900	5746100
01PQ02TD0008	07100008	(85)	Lac 20421 (Outardes)	19	464600	5720600

Tableau B-2. LOCALISATION DES STATIONS FEDERALES-PROVINCIALES, (suite)

b) RESEAU-LACS (Projet 10003)

Numéro de la station n° NAQUADAT	n° BQMA	Année d'échantillonnage	Description de la station (bassin versant)	Coordonnées UTM Zone	Est	Nord
01PQ01BD0001	01150005	B	Lac Causapscal (Matapédia)	19	638700	5371200
01PQ02ØE0026	03020163	B	Lac Lindsay (Saint-François)	19	300300	5005900
01PQ02NE0005	05010023	B	Lac du Caribou (Saint-Maurice)	18	665200	5199600
01PQ02NF0002	05010116	B	Lac Morissette (Saint-Maurice)	18	581000	5147350
01PQ02NG0006	05010066	(85)	Lac Reid (Saint-Maurice)	18	649900	5182800
01pQ02NB0003	05010029	B	Lac Sarto (Saint-Maurice)	18	563350	5278950
01PQ02RA0001	06220016	(85)	Lac C7943 (Péribonka)	19	326300	5690300
01PQ02RA0002	06220017	(85)	Lac Allenou (Péribonka)	19	331800	5656200
01PQ02RA0003	06220014	(85)	Lac C7946 (Péribonka)	19	352300	5746900
01PQ02RC0003	06220018	(85)	Lac C7942 (Péribonka)	19	371700	5642000

Localisation des stations fédérales-provinciales
Réseau des Outaouais - toxiques

NO. B.Q.M.A.	DESCRIPTION
4310010	Rivières des Outaouais à Notre Dame du Nord
4260002	Rivière Kipawa à Laniel
4310009	Rivière des Outaouais à Témiscaming
4130002	Rivière Coulonge à Fort Coulonge
4310008	Rivière des Outaouais au Barrage Chenaux à Portage-du-Fort
4080003	Rivière Gatineau à Touraine
4060004	Rivière du Lièvre à Buckingham
4310011	Rivière des Outaouais à Masson
4040001	Rivière de la Petite Nation à Plaisance
4020001	Rivière Rouge à Calumet
4310002	Rivière des Outaouais au Barrage de Carrillon

DESCRIPTION DU PROJET
DIRECTION DE LA QUALITE DES EAUX
1985/86

REGION Québec
NUMERO DU PROJET _____

TITRE DU PROJET: Réseau du fleuve Saint-Laurent

NOM DU PROGRAMME NATIONAL: Gestion des données sur la qualité de l'eau

CODE DU SCE 1.3

BUT: Exercer une surveillance de la qualité du milieu aquatique dans la partie fluviale du fleuve Saint-Laurent.

FONDEMENTS: Le fleuve Saint-Laurent draine plusieurs des régions les plus industrialisées d'Amérique du Nord, soit plus particulièrement la région internationale des Grands Lacs et la région métropolitaine de Montréal. Il est reconnu qu'il transporte des quantités non négligeables de substances nutritives et/ou toxiques.

DESCRIPTION DU PROJET:

1) Echantillonner 6 fois 26 stations de base de réparties entre Cornwall et l'île d'Orléans.

2) Echantillonner 6 fois 9 stations satellites situées dans le lac des Deux-Montagnes et les rivières des Prairies et des Mille-Iles.

3) Echantillonner 11 fois 13 stations satellites situées dans la zone d'influence de l'émissaire de la Communauté Urbaine de Montréal.

40 En collaboration avec les Relevés Hydrologiques, échantillonner 1 fois 60 échantillons en surface et en profondeur le long d'un transect horizontal au niveau de Contrecoeur.

5) Effectuer au laboratoire régional (Longueuil) les analyses des 395 échantillons récoltés pour les tests physiques, les éléments nutritifs et les ions majeurs, de même que 90 échantillons pour la bactériologie.

6) Faire analyser par le laboratoire central (Burlington) les 395 échantillons récoltés pour les métaux lourds et 30 échantillons pour les substances toxiques.

7) Valider les résultats d'analyse et les acheminer dans la base de données NAQUADAT.

8) Publier pour juillet 1985, un rapport sur la qualité de l'eau du fleuve Saint-Laurent entre 1977 et 1980.

9) Publier pour mars 1986 un rapport technique sur la variabilité spatiale de la qualité de l'eau du fleuve Saint-Laurent à partir des résultats de 77 stations échantillonnées en 1983/84.

10) Examiner, en collaboration avec le Service de Protection de l'Environnement, les données disponibles depuis 1950 pour déceler l'évolution temporelle de la qualité de l'eau du fleuve.

RESSOURCES: ($'000)

A - P TECHN:	
A - P PROF:	
A - P TOTAL:	3,0
TRAITEMENTS:	116,2
FONCTIONNEMENTS:	64,8
CONTRATS:	
INVESTISSEMENTS:	3,8
TOTAL:	184,8

Réseau du fleuve Saint-Laurent - Localisation des stations échantillonnées en 1985/86, réseau de base

Numéro de reference sur la carte	NO. NAQUADAT	DESCRIPTION
1	05QU02LB9001	Rivière des Outaouais sur le barrage de Carillon
2	00QU020A9002	Rivière des Outaouais, canal Sainte Anne à Sainte Anne-de-Bellevue sous la route 20
3	00QU02MC9007	Fleuve Saint-Laurent, canal de Beauharnois à Valleyfield, pont de la route 132, au centre de la voie navigable (00QU02MC0136)
10	00QU020B9016	Fleuve Saint-Laurent à 25 m du quai de Lanoraie
11	00QU020J9017	Fleuve Saint-Laurent à 50 m de la rive sud en face de Lanoraie
12	00QU02NG9019	Fleuve Saint-Laurent sous le pont Laviolette à Trois-Rivières, côté nord, entre le deuxième et le troisième pilier
13	00QU020D9020	Fleuve Saint-Laurent sous le pont Laviolette à Trois-Rivières, côté sud, entre le deuxième et le troisième pilier
14	00QU020D9026	Fleuve Saint-Laurent au centre du pont Laviolette à Trois-Rivières, (voie navigable)
15	00QU020J9027	Fleuve Saint-LAurent au centre de la voie navigable en face de Lanoraie
16	00QU020A9028	Fleuve Saint-Laurent à la prise d'eau de l'usine de filtration de Montréal (Charles J. Desbaillet)
27	00QU02PK9058	Fleuve Saint Laurent, à 30 m du quai de Leclercville
28	00QU02PC9060	Fleuve Saint-Laurent, voie navigable, près de la bouée rouge D12 en face de Leclerville
29	00QU02PC9061	Fleuve Saint-Laurent, à 30 m du quai de Saint-Charles-de-Grondines
30	00QU02PH9062	Fleuve Saint-Laurent entre l'île d'Orléans et la rive sud (partie sud)
31	00QU02PH9063	Fleuve Saint-Laurent entre l'île d'Orléans et la rive sud (au centre)

Réseau du fleuve Saint-Laurent - Localisation des stations échantillonnées en 1985/86, réseau de base (suite)

Numéro de reference sur la carte	NO. NAQUADAT	DESCRIPTION
32	00QU02PH9064	Fleuve Saint-Laurent entre l'ile d'Orléans et la rive sud (partie nord)
33	00QU02PE9065	Fleuve Saint-Laurent entre l'île d'Orléans et la rive nord (partie sud)
34	00QU02PE9066	Fleuve Saint-Laurent entre l'île d'Orléans et la rive nord (au centre)
35	00QU02PE9067	Fleuve Saint-Laurent entre l'île d'Orléans et la rive nord (partie nord)
39	00QU02MC9201	Fleuve Saint-Laurent, au lac Saint-François, face à l'usine d'épuration de Cornwall à 250 m de la rive
40	00QU02MC9202	Fleuve Saint-Laurent, au lac Saint-François, près de la bouée du diffuseur de Cornwall à 325 m en amont de l'île Pilon
41	00QU02MC9203	Fleuve Saint-Laurent, au lac Saint-François, entre les îles Cornwall et Pilon, voie navigable, à 550 m au nord de l'île Cornwall
42	00QU02MC9204	Fleuve Saint-Laurent, au lac Saint-François, à 200 m au sud de l'île Cornwall vis-à-vis de la bouée rouge D96
43	00QU02MC9205	Fleuve Saint-Laurent, au lac Saint-François, voie navigable, au sud de l'île Cornwall, en amont des bouées D95 et D96
44	00QU02MC9206	Fleuve Saint-Laurent, au lac Saint-François, à 250 m au nord de la réserve Saint-Régis à l'extrême ouest
45	00QU02MC9207	Embouchure de la rivière Saint-Régis 30 m en amont de l'île Mud, sur la frontière Canada-Etats-Unis

Réseau du fleuve Saint-Laurent - Localisation des stations échantillonnées en 1985-86 pour l'émissaire de la C.U.M.

Numéro de reference sur la carte	NO. NAQUADAT	DESCRIPTION
7	00QU020A9013	Fleuve Saint-Laurent entre Grande Ile et la rive sud (près de Boucherville) à 600 m de l'île sous la ligne de transmission
8	00QU020A9014	Fleuve Saint-Laurent entre l'île au Veau et Pointe-aux-Trembles sous la ligne de transmission à 400 m de l'île
9	00QU020J9015	Fleuve Saint-Laurent à 300 m en aval de l'île Evers (près de Varennes) entre l'île aux Cerfeuils et l'île des Lauriers
18	00QU020A9031	Fleuve Saint-Laurent entre l'île au Veau et Grande Ile au centre de la voie navigable sous la ligne de transmission
24	00QU020J9039	Fleuve Saint-Laurent à 100 m de la rive nord, près de Repentigny
25	00QU020J9040	Fleuve Saint-Laurent à 200 m en amont de l'île Beauregard (cap Saint-Michel) au centre du fleuve
26	00QU020B9041	Fleuve Saint-Laurent à 100 m en avail de l'île Hertel (près du cap Saint-Michel au centre de la voie navigable)
36	00QU020A9068	Embouchure de la rivière l'Assomption sous le pont de la route 640
37	00QU020A9069	Rivière des Prairies, à son embouchure
38	00QU020A9070	Embouchure de la rivière des Milles Iles

Réseau du fleuve Saint-Laurent - Localisation des stations échantillonnées en 1985-86 pour le lac des Deux Montagnes

Numéro de reference sur la carte	NO. NAQUADAT	DESCRIPTION
50	00QU020A9003	Rivière des Prairies, vis-à-vis la prise d'eau de l'usine de Chomedey (00QU020A0005)
51	00QU020A9004	Rivière des Prairies, sous le pont PIE-IX, à 60 m de la rive nord (00QU020A0124)
52	00QU020A9005	Rivière des Mille Iles, vis-à-vis la prise d'eau de Laval-ouest (00QU020A0008)
53	00QU020A9006	Rivière des Mille Iles, vis-à-vis la prise d'eau de Terrebonne
54	00QU020A9046	Rivière des Outaouais à Dorion près de la route 20, première bouée en amont
55	00QU020A9047	Rivière des Prairies à la sortie du lac des Deux-Montagnes
56	01QU020A9048	Lac des Deux Montagnes en aval de la pointe des Carrières à la croisée des voies navigables
57	00QU020A9071	Rivière des Outaouais, au centre de la rivière, vis-à-vis le trajet du traversier d'Oka (00QU020A0117)
58	01QU020A9072	Centre du lac des Deux-Montagnes

DESCRIPTION DU PROJET
DIRECTION DE LA QUALITE DES EAUX
1985/86

REGION Québec
NUMERO DU PROJET _____

TITRE DU PROJET: Réseau Transfrontalier Canada - Etats-Unis

NOM DU PROGRAMME NATIONAL: Gestion des données sur la qualité de l'eau

CODE DU SCE 1.3

BUT: Exercer une surveillance de la qualité du milieu aquatique dans des cours d'eau transfrontaliers entre le Québec et les Etats-Unis.

FONDEMENTS: La surveillance de la qualité des eaux transfrontalières permet d'identifier les problèmes de pollution chimique et/ou organique dans ces eaux. Le territoire étudié couvre des rivières situées aux frontières entre le Québec et les états du New York, Vermont et New Hampshire.

DESCRIPTION DU PROJET:

1) Echantillonner 6 fois 12 station situées le long du 45^{e} parallèle entre le Québec et l'état de New-York.

2) Effectuer au laboratoire régional (Longueuil) les analyses des 72 échantillons récoltés pour les tests physiques, les éléments nutritifs et les ions majeurs, de même que 24 échantillons pour la bactériologie.

3) Faire analyser par le laboratoire central (Burlington) les 72 échantillons récoltés pour les métaux lourds et le TKN.

4) Valider les résultats d'analyse et les acheminer dans la base de données NAQUADAT.

5) Publier pour Décembre 1985 un rapport sur la qualité de l'eau de la baie Missisquoi à partir des données récoltées en 1983/84.

RESSOURCES: ($'000)

A - P TECHN:	
A - P PROF:	
A - P TOTAL:	0,9
TRAITEMENTS:	31,5
FONCTIONNEMENT:	18,6
CONTRATS:	
INVESTISSEMENTS:	
TOTAL	50,1

Réseau Transfrontalier - Localisation des stations prévues en 1985-86

Numéro de reference sur la carte	NO. NAQUADAT	DESCRIPTION
60	00QU020E9101	Ruisseau Hall à environ 1 km au nord de Comins Hill
61	00QU020E9102	Ruisseau Leach à Hereford sur le pont menant à Hereford Hill
62	00QU020E9107	Rivière Coaticook sous le pont de la voie ferrée en arrière des douanes des USA
63	00QU020E9108	Rivière Tomifobia sur le pont de la route entre Judge Mills et Baldwin Mills
64	00QU020E9113	Rivière Tomifobia à la limite ouest de Rock Island sur la route 247 face à la maison 139
65	00QU020H9116	Rivière Missisquoi près des douanes de Highwater, sud du ruisseau Mud
66	00QU020H9117	Rivière Missisquoi sous le pont de la frontière à East Richford
67	00QU020H9118	Rivière Sutton sous le pont de la route 139 à Abercorn
68	00QU020H9119	Rivière aux Brochets sous le pont de la route 237 au sud de Frelighsburg, (premier au nord des douanes)
69	00QU020H9161	Rivière de la Roche à son entrée au Québec sur la frontière
70	00QU020A9143	Rivière à la truite sur la route 138 au sud de Kensington (aux douanes)
71	00QU02MC9144	Rivière aux Saumons sur le quai en béton aux douanes de Dundee

DESCRIPTION DU PROJET
DIRECTION DE LA QUALITE DES EAUX
1985/86

REGION Québec
NUMERO DU PROJET _____

TITRE DU PROJET: Réseau du Nouveau-Québec

NOM DU PROGRAMME NATIONAL: Gestion des données sur la qualité des eaux

CODE DU SCE 1.3

BUTS: Acquérir des données de base sur la qualité de l'eau au Nouveau-Québec et développer un réseau d'échantillonnage pour assurer une surveillance de la qualité du milieu aquatique au nord du 55e parallèle.

FONDEMENTS; Pour assurer une surveillance continue de la qualité de l'eau de l'ensemble du territoire québécois, il s'avérait nécessaire qu'un réseau d'échantillonnage soit établi pour couvrir la partie septentrionale du Québec. Compte tenue que les réseaux du MENVIQ concernent des cours d'eau situés exclusivement au sud du 52e parallèle et que la Société d'Energie de la Baie James effectue une surveillance dans le territoire dela Baie James, le réseau du Nouveau-Québec a été établi prioritairement au nord du 55e parallèle.

DESCRIPTION DU PROJET:

1) Avec la collaboration de la direction des relevés aquatiques de Environnement Québec, échantillonner 2 fois 10 stations sur des rivières se déversant dans la baie d'Ungava et la baie d'Hudson.

2) Effectuer au laboratoire régional (Longueuil) les analyses des 20 échantillons récoltés pour les tests physiques, les éléments nutritifs et les ions majeurs.

3) Faire analyser par le laboratoire central (Burlington) les 20 échantillons pour les métaux lourds et les substances organiques (PCB/OC).

4) Valider les résultats d'analyse et les acheminer dans la base de données NAQUADAT.

RESSOURCES: ($'000)

A - P TECHN:	
A - P PROF:	
A - P TOTAL:	0,40
TRAITEMENTS:	13,9
FONCTIONNEMENT:	9,5
CONTRATS:	
INVESTISSEMENT:	
TOTAL:	23,4

Réseau Nouveau-Québec - Localisation des stations échantillonnées en 1985-86

Numéro de Reference sur la carte	NUMERO DE LA STATION NAQUADAT	DESCRIPTION DE LA STATION
80	00QU03MC9404	Rivière à la Baleine, à 17 km en amont de la Chaumaux
81	00QU03LF9402	Rivière Caniapiscau, en amont de la chute du Calcaire
82	00QU03KC9403	Rivière aux Mélèzes, à 7,6 km de la Koksoak
83	00QU03FA9405	Rivière Nastapoca, à 29 km de son embouchure
84	00QU03JB9409	Rivière aux Feuilles, à 6,4 km en aval de la Péladeau (rivière Guenyveau)
85	00QU03ED9401	Grande rivière de la Baleine, premier rapide en aval de la Denys
86	00QU03HA9408	Rivière Arnaud, à 13,7 km de la rivière Hamelin
87	00QU03MD9411	Rivière Georges à environ 8 km en aval de Pyramid Hills (aval de la petite île)
88	00QU03EC9413	Rivière Denys
89	00QU03FC9414	Petite rivière de la Baleine
90	01QU03FA9415	Lac des Loups Marins
91	00QU03FB9416	Rivière du Nord
92	01QU03JA9417	Lac Minto
93	00QU03FB9418	Rivière à l'eau claire
94	00QU03ED9419	Rivière Coast

DESCRIPTION DU PROJET
DIRECTION DE LA QUALITE DES EAUX
1985/86

REGION Québec
NUMERO DU PROJET _____

TITRE DU PROJET: Contribution au programme d'études du lac Laflamme (TDPA)

NOM DU PROGRAMME NATIONAL: Gestion des données sur la qualité de l'eau

CODE DU SCE: 1.3

BUTS: Soutien analytique approprié pour le programme d'études entrepris par la DGEI-Q au lac Laflamme sur les effets des précipitations acides sur l'écosystème aquatique.

FONDEMENTS: La DGEI-Q poursuit depuis quelques années un programme de recherche au lac Laflamme sur les précipitations acides. Ce bassin versant calibré fait l'objet de recherches multidisciplinaires par plusieurs organismes (DGEI-Q, Centre de Recherche Forestière des Laurentides, Ministère des Pêches et Océans, Université Laval). Tous les travaux visent à circonscrir les effets des précipitations acides sur l'écosystème aquatique des forêts boréales.

DESCRIPTION DU PROJET:

1) Effectuer au laboratoire régional (Longueuil) l'analyse des 104 échantillons récoltés annuellement pour les tests physiques, les éléments nutritifs et les ions majeurs.

2) Valider les résultats d'analyse et les acheminer au chargé de projet.

RESSOURCES: ($'000)

A - P TECHN:	
A - P PROF:	
A -P TOTAL:	0,3
TRAITEMENTS:	10,4
FONCTIONNEMENT:	4,6
CONTRATS:	
INVESTISSEMENTS:	
TOTAL:	15,0

DESCRIPTION DU PROJET
DIRECTION DE LA QUALITE DES EAUX
1985/86

REGION Québec
NUMERO DU PROJET S.T.

TITRE DU PROJET: Dissémination des substances toxiques

NOM DU PROGRAMME NATIONAL: Produits chimiques-toxiques CODE DU SCE 4.1

BUTS: Dans le fleuve Saint-Laurent et les cours d'eau transfrontaliers, recueillir des données sur les substances toxiques, les analyser, les interpréter et les rendre adéquates pour fins d'utilisation et d'interprétation.

FONDEMENT: Fournir de l'information sur la présence de substances toxiques dans l'environnement et la connaissance de leurs impacts actuels et potentiels.

DESCRIPTION DU PROJET:

1) Prélever des sédiments de fond à une trentaine de stations dans le lac des Deux Montagnes, le bassin de Carillon, le canal de Beauharnois, l'embouchure de la rivière Saint-Louis et dans le lac Saint-Louis; effectuer des analyses chimiques et biologiques. Acquérir de l'expertise dans les analyses biologiques (élutriation, bioessais) des sédiments.

2) Collaborer avec l'INRE et l'Université de Montréal et coordonner les travaux de recherche axés sur l'évaluation des substances toxiques dans les sédiments du fleuve Saint-Laurent.

3) Faire la compilation des données sur les sédiments du lac Saint-Louis et en faire une interprétation préliminiaire

4) Finaliser la compilation des données sur les poissons provenant des lacs Saint-Louis et Saint-François, ainsi que de la rivière Richelieu et la baie Missisquoi. Initier un rapport d'interprétation.

5) Faire le point sur les conclusions et recommandations du rapport de la proposition spontannée qui évalue la faisibilité d'utilisation des ménés comme bio-indicateur des contaminants. Evaluer la possibilité d'un réseau et faire les recommandations. Elaborer un projet de ménés comme bio-indicateur des apports de contaminants provenant de l'émissaire de la CUM en collaboration avec la CUM. Finir d'effectuer des analyses de métaux lourds sur des ménés de 1984-1985.

Paramètres:

Sédiments: granulométrie, minéralogie, éléments majeurs, substances nutritives, métaux lourds, PCB/OC, PAH; bactériologie, biomasse ATP

Elutriat: pH, cond., turb., SS, COT, couleur, ions majeurs, substances nutritives, métaux lourds; bioessais (nématodes, Microtox, C^{14}).

Poissons'84: métaux lourds, (50 - 75 échantillons)

Poissons'85: lipides, métaux lourds, PCB/OC. (seulement si un projet avec la CUM se réalise).

RESSOURCES: ($'000)

A-P TOTAL	2,5
TRAITEMENTS:	87,4
FONCTIONNEMENT	50,1
CONTRATS	--
INVESTISSEMENT	19,6
TOTAL$	156,8

RESEAU DE SURVEILLANCE DE LA QUALITE DE L'EAU

1985/1986

PARAMETRES ANALYSES PAR RESEAU:

Fleuve Saint-Laurent:

- Tests physiques: pH, conductivité, couleur, alcalinité, dureté, matière solide en suspension totale, turbidité.
- Ions Majeurs.: Ca, Mg, Na, K, Cl^-, SO_4
- Eléments nutritifs: P total, NO_2-NO_3
- Métaux: Al, Cd, Cu, Fe, Ni, Mn, Pb, Zn, As, Si

Lorsqu'il y a de la bactériologie qui se fait:

- bactériologie: coliformes totaux, coliformes fécaux et streptocoques fécaux
- COT est également fait.
- PCB/OC aux stations suivantes: 9202, 9205, 9206, 9207, 9007

Emissaire:

- Tests physiques: Idem + matières solides en suspension (fixes et totales)
- Ions majeurs: Idem
- Eléments nutritifs: P total, NO_2-NO_3
- Métaux: idem, As/Se
- COT:
- bactériologie: 1 échantillon à toutes les stations, 3 échantillons aux stations suivantes: 9014, 9031, 9015, 9073 et 9016
- As/Se: à 9039 et 9041 (pour Pêches et Océans)

Contrecoeur:

- tests physiques: pH, conductivité, alcalinité, turbidité
- Ions majeurs: Ca, Mg, Na, K, Cl, SO_4
- éléments nutritifs: P total, NO_2-NO_3
- métaux lourds: Al, Cd, Cu, Fe, Mn, Ni, Pb, Zn, As, Se

Transfrontalier:

- tests physiques: pH, conductivité, couleur, alcalinité, dureté, matières solides en suspension totales, turbidité.
- Ions majeurs: Ca, Mg, Na, K, Cl^-, SO_4
- Eléments nutritifs: P total, NO_2-NO_3, TKN
- Métaux lourds: Al, Cd, Cu, Fe, Ni, Mn, Pb, Zn, As, Se

Lorsqu'il y aura de la bactériologie, l'analyse du COT sera également faite ainsi que le mercure

TDPA: Pluies Acides:

- tests physiques: pH, conductivité, couleur, alcalinité Gran
- Ions Majeurs: Ca, Mg, Na, K, Cl^-, SO_4, F^-, SiO_2
- Eléments nutritifs: P total, NO_2-NO_3, NH_3
- DIC DOC
- Métaux: Al, Fe, Mn

Nouveau-Québec:

- Tests physiques: pH, conductivité, turbidité, couleur apparente, résidus non-filtrables fixes et totaux, alcalinité totale, dureté totale
- Ions majeurs: Ca, Mg, Na, K, Cl, SO_4
- Eléments nutritifs: P total, NO_2-NO_3
- COT
- Métaux: Al, Cd, Cu, Fe, Mn, Ni, Pb, Zn, As/Se
- PCB/OC
- Mercure

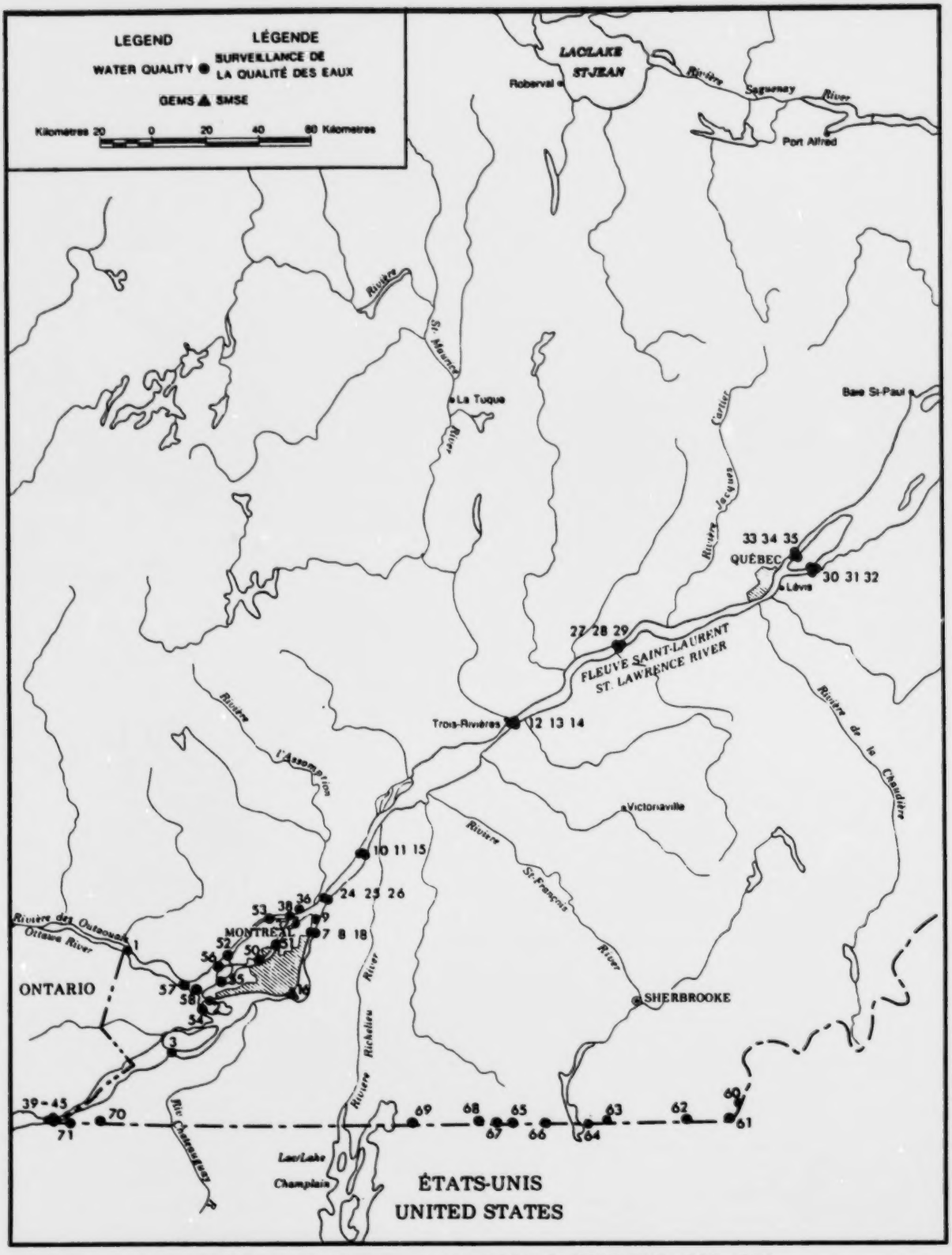


FIGURE 5 WATER QUALITY BRANCH MONITORING STATIONS 1985-1986

STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

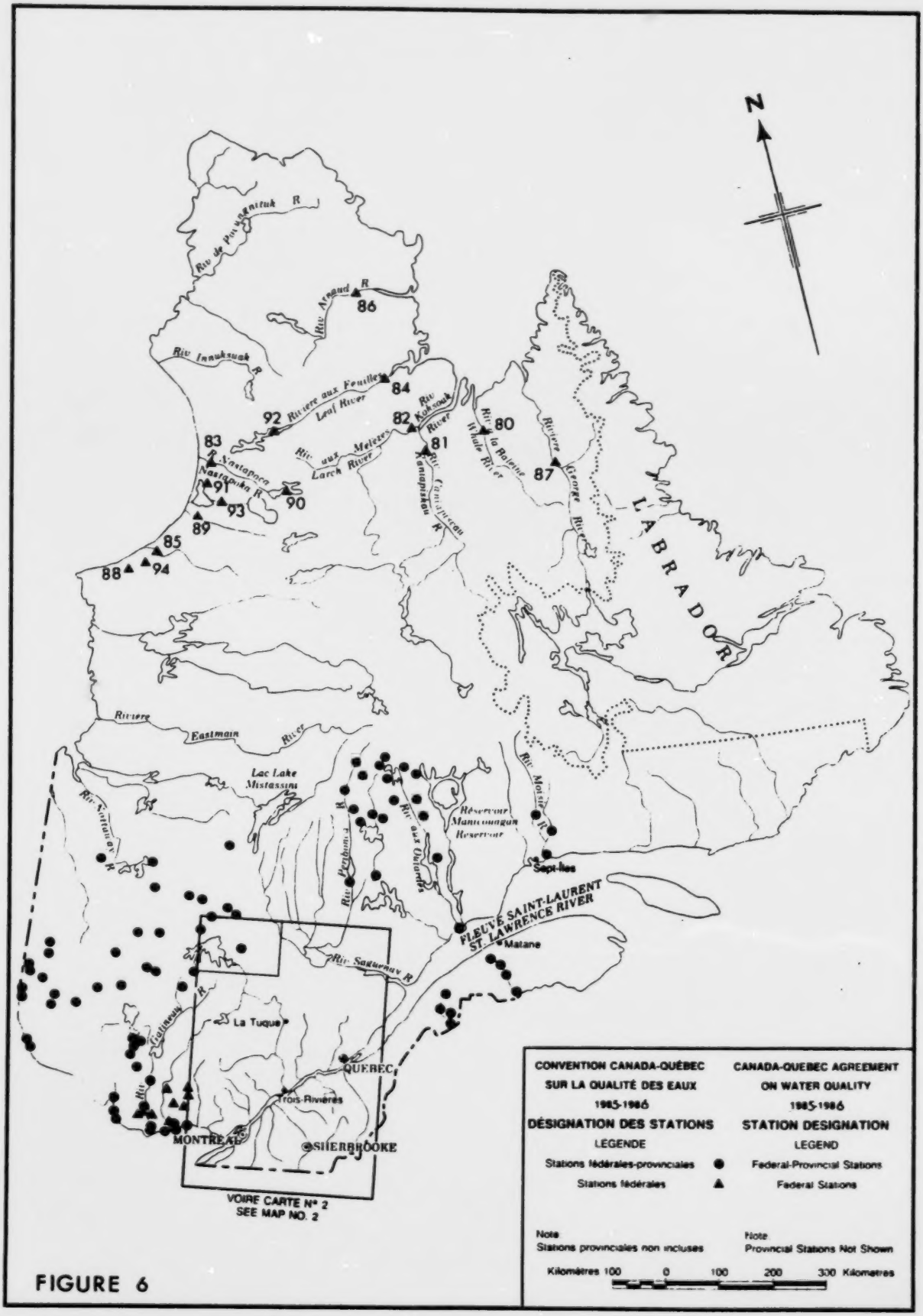

N
Riv. Arnaud R
86
Riv. Innuksuak R
Rivière aux Feuilles
Leaf River
84
92
Riv. Koksoak River
82
83
Nastapoca
Nastapoka R
91
93
90
Rivière aux Mélèzes
Larch River
81
Riv. Caniapiscau
Xeniapiscau R
Riv. la Baleine
Whale River
80
Rivière George
George River
87
89
85
88
94
LABRADOR
Rivière
Eastmain
River
Lac Lake
Mistassini
Riv. Nottaway R
Réservoir
Manicouagan
Reservoir
Riv. aux Outardes
Riv. Moisie R.
Sept-Îles
Riv. Péribonka
FLEUVE SAINT-LAURENT
ST. LAWRENCE RIVER
Matane
Riv. Saguenay R
Riv. Gatineau R
La Tuque
QUÉBEC
Trois-Rivières
MONTRÉAL
SHERBROOKE
VOIRE CARTE Nº 2
SEE MAP NO. 2
CONVENTION CANADA-QUÉBEC
SUR LA QUALITÉ DES EAUX
1985-1986
DÉSIGNATION DES STATIONS
LÉGENDE
Stations fédérales-provinciales
Stations fédérales
CANADA-QUEBEC AGREEMENT
ON WATER QUALITY
1985-1986
STATION DESIGNATION
LEGEND
Federal-Provincial Stations
Federal Stations
Note
Stations provinciales non incluses
Note
Provincial Stations Not Shown
Kilomètres 100 0 100 200 300 Kilometres

FIGURE 6

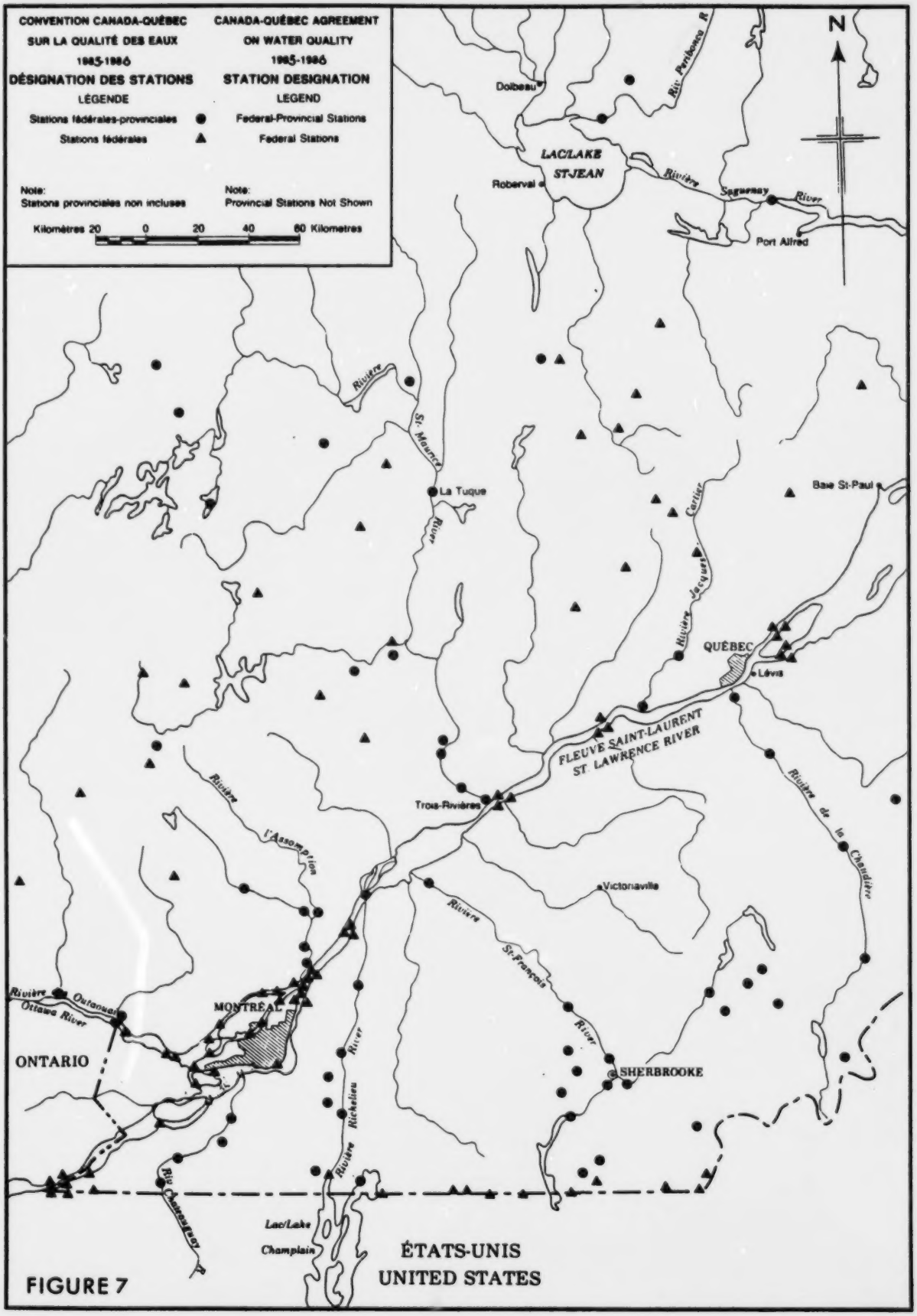

CONVENTION CANADA-QUÉBEC
SUR LA QUALITÉ DES EAUX
1985-1986
DÉSIGNATION DES STATIONS
LÉGENDE
Stations fédérales-provinciales
Stations fédérales
Note:
Stations provinciales non incluses
CANADA-QUÉBEC AGREEMENT
ON WATER QUALITY
1985-1986
STATION DESIGNATION
LEGEND
Federal-Provincial Stations
Federal Stations
Note:
Provincial Stations Not Shown
Kilomètres 20 0 20 40 60 Kilometres
N
Dolbeau
Rivière Peribonca R.
LAC/LAKE ST-JEAN
Roberval
Rivière Saguenay River
Port Alfred
Rivière St-Maurice River
La Tuque
Baie St-Paul
Rivière Jacques Cartier
QUÉBEC
Lévis
FLEUVE SAINT-LAURENT
ST LAWRENCE RIVER
Trois-Rivières
Rivière L'Assomption
Victoriaville
Rivière de la Chaudière
Rivière St-François River
Rivière Outaouais
Ottawa River
MONTRÉAL
ONTARIO
SHERBROOKE
Rivière Richelieu River
Riv. Chateauguay R.
Lac/Lake Champlain
ÉTATS-UNIS
UNITED STATES

FIGURE 7

D.3 ONTARIO REGION

Région de l'Ontario

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO:WQ-101

PROJECT TITLE: LAKE SUPERIOR OPEN LAKE SURVEILLANCE

NATIONAL PROGRAM NAME: Canada/US and Interjurisdictional Water Management

ECS CODE 1.1

STUDY TEAM: M. Neilson (L), C.H. Chan, R. Stevens.

GOALS:
1. Preparation of 2 reports ("Atmospheric Loading to Lake Superior", "Open Water Chemistry of Lake Superior - 1973, 1983" by July 1985. (Chan).
2. Participation on Lake Superior Task Force. (Neilson).
3. Spring cruise (May, 1985) on Lake Superior for a variety parameters at 60 stns.

RATIONALE: To fulfill Canada's commitment for surveillance and monitoring under the Canada-US Great Lakes Water Quality Agreement and for provision of data and assistance to the International Joint Commission.

DESCRIPTION:
- C.H. Chan will be preparing 2 reports by July, 1985 on the results of the Lake Superior Intensive effort.
- Based on the lack of available (trend) data on Lake Superior (2 extensive sampling efforts in 20 yrs) spring sampling will be repeated in 1985 to substantiate changes seen between 1973 and 1983.
- It is anticipated that the Lake Superior Task Force will design the Lake Superior Surveillance Plan this year.
- Trace metal samples will be analyzed in triplicate using both methods (AA and ICAP).

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 60d.

	Total
PY TECH.	
PROF	0.5
TOTAL PY	0.5
SALARIES	18.3
O&M	5.0
CONTRACTS	-
CAPITAL	-
TOTAL $	23.5

Surveillance Stations
Lake Superior
1985-86

Station Number	Latitude N.	Longitude N.
1	46° 29' 06"	84° 50' 00"
2	46° 32' 36"	84° 44' 54"
3	46° 36' 00"	84° 35' 30"
12	47° 02' 12"	85° 06' 12"
17	46° 42' 48"	85° 49' 06"
22	46° 58' 06"	85° 43' 40"
23	47° 12' 48"	85° 38' 00"
25	47° 27' 18"	85° 16' 30"
28	47° 35' 06"	85° 03' 54"
30	47° 43' 12"	85° 08' 20"
31	47° 55' 06"	84° 54' 46"
34	47° 50' 00"	85° 12' 30"
35	47° 55' 54"	85° 16' 12"
43	47° 04' 48"	86° 28' 40"
45	46° 51' 24"	86° 34' 06"
50	46° 30' 30"	86° 34' 06"
51	46° 31' 00"	87° 20' 12"
52	46° 34' 00"	87° 19' 56"
62	47° 10' 00"	87° 38' 36"
68	47° 01' 00"	88° 11' 00"
69	46° 51' 42"	88° 25' 48"
70	47° 03' 00"	88° 18' 00"
80	47° 35' 00"	86° 57' 06"
84	48° 06' 48"	86° 18' 00"
89	48° 42' 00"	86° 25' 06"
92	48° 35' 00"	86° 33' 54"
100	48° 45' 24"	86° 58' 33"
101	48° 44' 06"	87° 10' 00"
102	48° 36' 54"	87° 26' 09"
105	48° 44' 00"	87° 33' 48"
113	48° 08' 42"	87° 42' 12"
125	47° 36' 18"	88° 13' 00"
133	48° 17' 00"	88° 35' 50"
135	48° 19' 48"	88° 38' 00"
136	48° 17' 24"	88° 49' 48"

Surveillance Stations
Lake Superior
1985-86
(Continued)

Station Number	Latitude N.	Longitude N.
137	48° 18' 06"	88° 57' 00"
138	48° 25' 00"	88° 56' 00"
139	48° 17' 54"	89° 10' 48"
140	48° 09' 00"	89° 08' 54"
149	47° 53' 00"	89° 38' 24"
152	47° 41' 18"	89° 28' 00"
157	47° 36' 48"	89° 00' 00"
164	47° 01' 36"	89° 02' 18"
165	46° 53' 30"	89° 20' 51"
169	47° 12' 24"	89° 40' 00"
177	47° 43' 00"	90° 20' 00"
180	47° 28' 00"	90° 51' 18"
189	46° 50' 42"	90° 11' 20"
196	46° 44' 54"	90° 42' 12"
203	47° 13' 18"	91° 12' 18"
207	47° 00' 12"	91° 30' 54"
218	46° 49' 00"	91° 53' 06"
220	46° 42' 18"	91° 57' 54"
221	46° 46' 54"	92° 03' 15"
127	010N02IS0020	

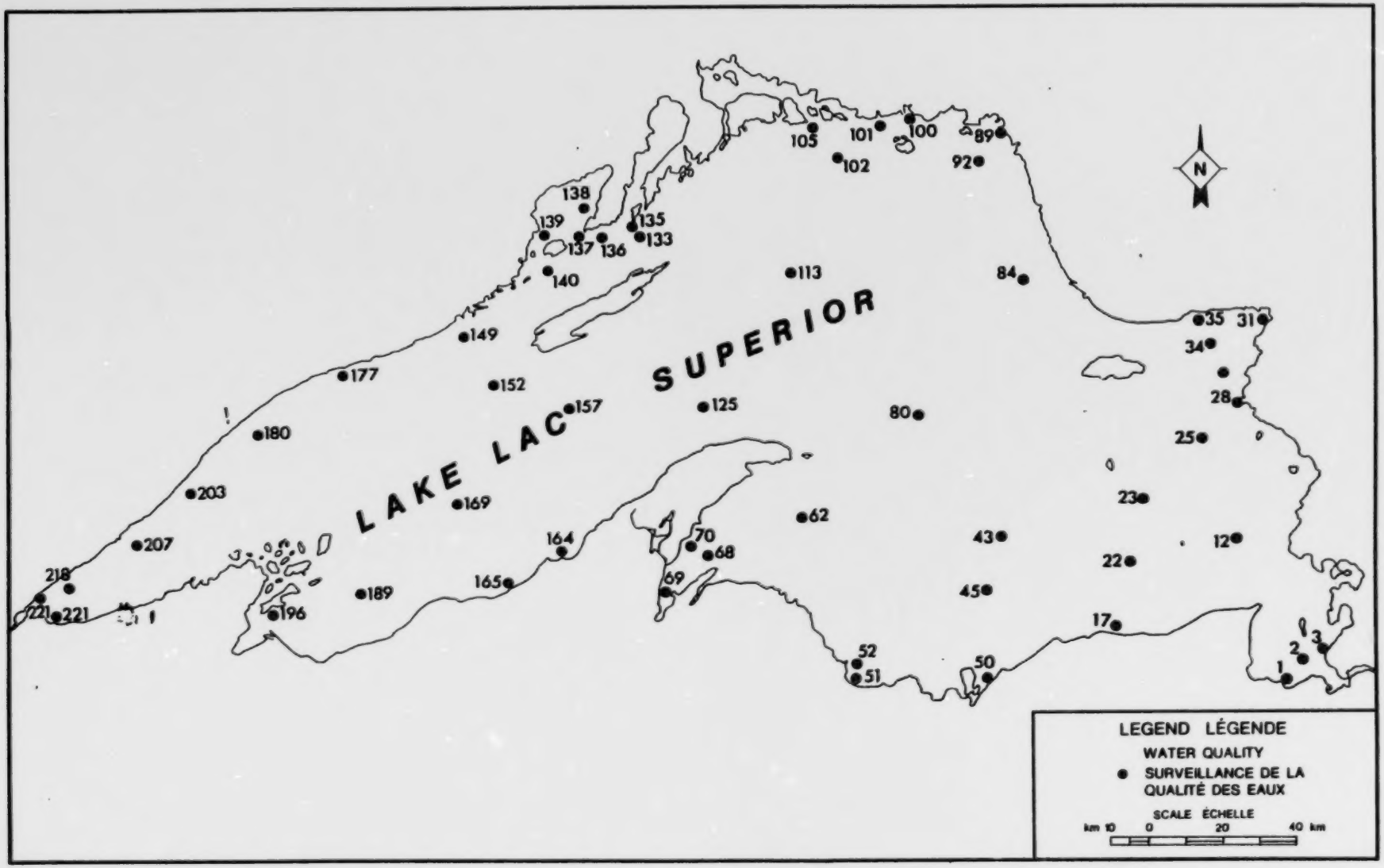


FIGURE 8 WATER QUALITY BRANCH MONITORING STATIONS **1985 – 86**
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX **1985 – 86**

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/ Ontario
PROJECT NO: WQ-102

PROJECT TITLE: LAKE HURON OPEN LAKE SURVEILLANCE

NATIONAL PROGRAM NAME Canada/US and Interjurisdictional Management Water Management ECS CODE 1.1

STUDY TEAM: M. Neilson (L), R. Stevens, D. Warry

GOALS:
1. Update status of water quality of Lake Huron for submission to Lake Huron task force by July, 1986.
2. Write up results of organics cruise (conducted in 1984) by Mar, 1986.
3. Conduct one spring (May, 1985) and one summer (August, 1985) cruise on Lake Huron sampling 90 stns for a variety of parameters.
4. Chair Lake Huron Task Force (Warry) and provide input to same (Neilson).

RATIONALE:
To fulfill Canada's commitment for surveillance and monitoring under the Canada-US. Great Lakes Water Quality Agreement and for the provision of data and assistance to the International Joint Commission.

DESCRIPTION:

- Nutrient and organic contaminant reports, based on sampling efforts of 1984, will be written for inclusion in Task Force report.
- The annual component of the Lake Huron Surveillance Program will include monitoring approx. 90 stations for an extensive series of parameters during spring (May) and summer (August) conditions, to supplement existing data base and establish trends. Trace metal samples will be analyzed in triplicate using both methods (AA and ICAP).

ESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 60d

	Total
PY TECH. PROF.	0.5
TOTAL PY	0.5
SALARIES	18.5
O&M	5.0
CONTRACTS	-
CAPITAL	-
TOTAL $	23.5

Sampling Stations
Lake Huron
1985-86

Station Number	Latitude N.	Longitude N.
1	43° 05' 24"	82° 23' 30"
3	43° 15' 25"	82° 02' 18"
4	43° 19' 30"	81° 47' 18"
5	43° 32' 54"	81° 44' 42"
7	43° 20' 30"	82° 30' 24"
8	43° 34' 00"	82° 29' 06"
9	43° 38' 00"	82° 13' 00"
10	43° 45' 12"	81° 46' 54"
11	43° 57' 24"	81° 47' 12"
12	43° 53' 24"	82° 03' 24"
13	43° 45' 12"	82° 34' 06"
14	43° 56' 30"	82° 40' 00"
17	44° 06' 00"	82° 52' 00"
20	44° 13' 00"	83° 05' 00"
23	44° 20' 00"	83° 18' 00"
27	44° 11' 54"	82° 30' 12"
29	44° 22' 00"	81° 50' 00"
30	44° 28' 00"	81° 27' 12"
32	44° 27' 12"	82° 20' 30"
33	44° 30' 00"	82° 50' 00"
34	44° 38' 24"	83° 13' 54"
36	45° 02' 06"	83° 22' 42"
38	01ON02IH0014	
39	44° 39' 24"	81° 22' 42"
40	44° 53' 54"	81° 26' 12"
41	45° 05' 00"	81° 32' 18"
42	45° 13' 18"	81° 49' 12"
43	45° 00' 48"	82° 00' 30"
44	45° 01' 00"	82° 41' 06"
47	45° 15' 18"	83° 20' 48"
48	45° 16' 42"	82° 27' 06"
50	45° 32' 06"	82° 02' 42"
52	45° 39' 06"	82° 38' 54"
54	45° 31' 00"	83° 25' 00"
55	45° 23' 30"	83° 39' 06"

Sampling Stations
Lake Huron
1985-86
(Continued)

Station Number		Latitude N.	Longitude N.
56		45° 31' 00"	84° 05' 00"
58		45° 52' 06"	83° 16' 00"
59		45° 46' 00"	83° 01' 42"
60		45° 54' 06"	83° 31' 06"
61		45° 45' 00"	83° 55' 00"
62		45° 40' 30"	84° 11' 12"
63		45° 42' 12"	84° 30' 42"
64		45° 48' 48"	84° 45' 18"
65		45° 50' 42"	84° 34' 00"
66		45° 51' 48"	84° 17' 42"
67		45° 56' 06"	83° 54' 00"
68		46° 02' 30"	83° 51' 12"
69		46° 04' 42"	84° 01' 42"
70		46° 08' 12"	83° 40' 18"
71		46° 14' 00"	83° 44' 48"
73		46° 11' 12"	83° 12' 18"
76		46° 00' 00"	83° 26' 00"
77		45° 58' 12"	83° 11' 54"
79		46° 07' 24"	82° 53' 09"
82		45° 56' 18"	82° 45' 30"
83		46° 00' 00"	82° 33' 00"
84		46° 05' 30"	82° 33' 24"
87		46° 03' 40"	82° 11' 50"
88		46° 03' 20"	82° 00' 00"
89		45° 55' 00"	82° 09' 40"
95	Saginaw Bay	44° 12' 45"	83° 22' 15"
96		44° 07' 35"	83° 10' 15"
97		44° 06' 55"	83° 31' 45"
98		43° 58' 35"	83° 34' 32"
99		43° 54' 30"	83° 44' 30"
100		43° 49' 30"	83° 49' 02"
101		43° 49' 15"	83° 37' 30"

Sampling Stations
Georgian Bay
1985-86

Station Number	Latitude N.	Longitude N.
1	44° 43' 03"	80° 51' 24"
3	44° 43' 30"	80° 37' 00"
4	44° 38' 45"	80° 10' 00"
5	44° 47' 48"	80° 14' 36"
6	44° 44' 12"	80° 26' 06"
8	44° 57' 10"	80° 08' 06"
9	44° 52' 18"	79° 58' 05"
11	44° 55' 15"	80° 36' 21"
12	44° 55' 12"	80° 52' 30"
15	45° 10' 00"	80° 17' 48"
16	45° 21' 13"	80° 29' 12"
17	010N02IG0003	
19	45° 04' 00"	81° 15' 14"
21	45° 21' 54"	81° 11' 24"
24	45° 40' 44"	80° 50' 20"
26	45° 50' 00"	80° 54' 00"
27	45° 52' 00"	81° 00' 00"
29	45° 35' 00"	81° 05' 00"
31	45° 14' 18"	81° 26' 24"
33	45° 22' 13"	81° 35' 06"
35	45° 31' 39"	81° 40' 10"
36	45° 42' 30"	81° 37' 12"
39	45° 52' 24"	81° 15' 30"
42	45° 54' 46"	81° 35' 42"

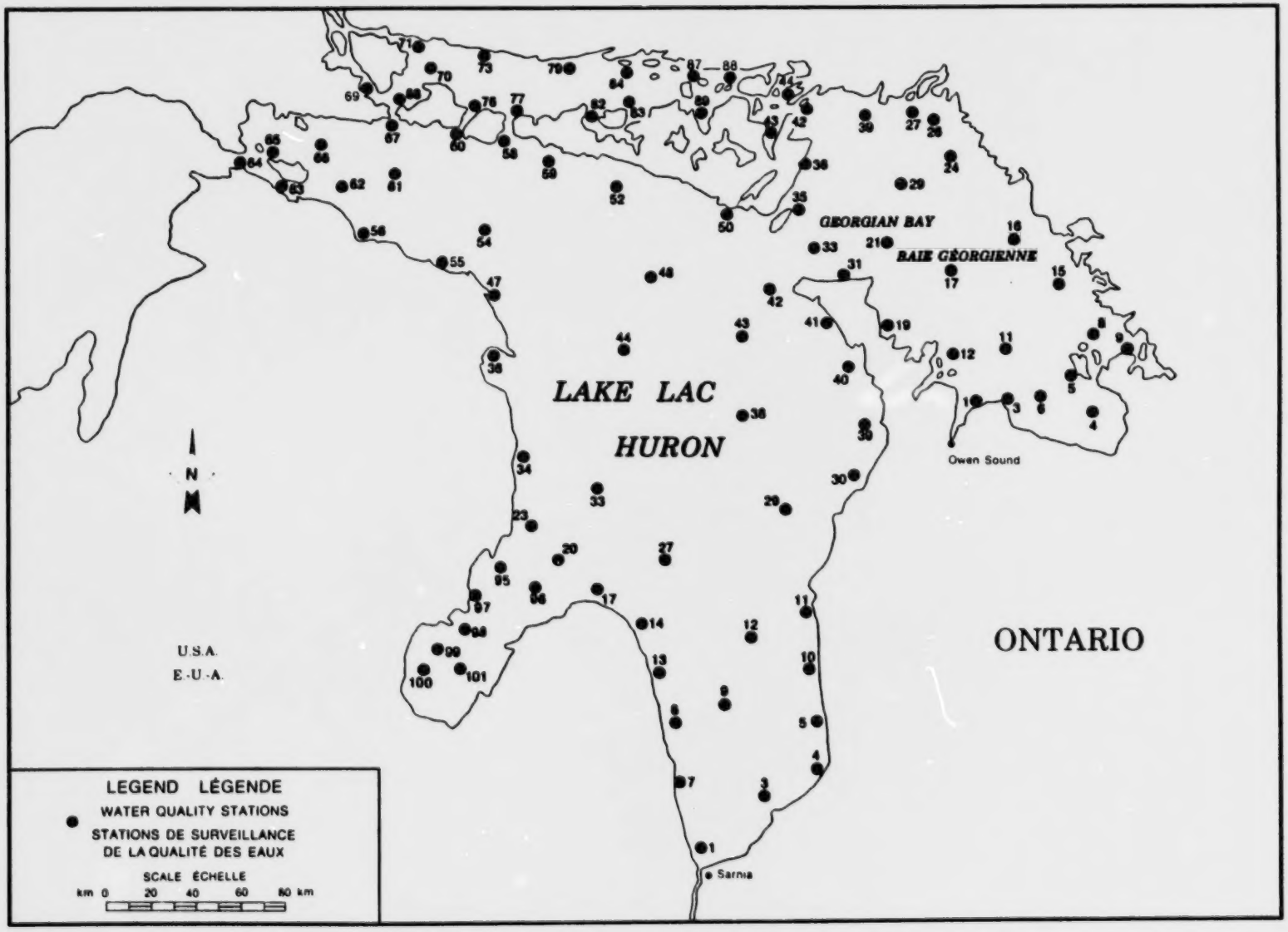


FIGURE 10 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ
DES EAUX 1985-86

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-104

PROJECT TITLE: LOWER LAKES SURVEILLANCE

NATIONAL PROGRAM NAME: Canada/U.S. and Interjurisdictional Water Management

ECS CODE 1.1

STUDY TEAM: R. Stevens, M. Neilson

GOALS:
1. Completion of Lake Ontario Intensive Report for submission to the SWG by August, 1985.
2. Produce a report documenting the statistical procedures used to rezone Lake Ontario. Due date September '85.
3. Present a paper on item (2) at the CCIW statistical workshop in October 1985.
4. Present a paper at the IAGLR conference in June, 1985 entitled "Response of Lake Ontario water quality to reductions in phosphorus loading".
5. Complete four full chemistry cruises (April 2-6, mid-July, mid-August-mid- September)
6. Participate on the Lake Ontario and Lake Erie Task Forces as required.

DESCRIPTION:

The annual component of the Lake Ontario Surveillance Program will include two full chemistry spring cruises (the first cruise is included in the 1984/85 project forecast) and 3 full chemistry summer cruises (mid-July, mid-August, mid-September) emphasizing biomass estimates. Spring cruises will require the support of 1 lab technician from NWQL, while the summer cruises require 2 lab technicians.

The mid-August cruise will include a field trial of P. Golden's organic sampler, to be provided by NWQL. These stations will be sampled based on analysis of 1983 organics data.

Phytoplankton and zooplankton samples will be collected at three stations during all cruises. In addition, 25 additional stations will be sampled during the mid-August cruise. Samples will be archived for future analysis.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 60d

	Total
PY TECH.	
PROF.	1.5
TOTAL PY	1.5
SALARIES	55.5
O&M	8.3
CONTRACTS	-
CAPITAL	-
TOTAL $	63.8

Surveillance Stations
Lake Ontario
1985-86

Station Number	Latitude N.	Longitude N.
1	43° 18' 46"	79° 45' 05"
2	43° 20' 22"	79° 39' 54"
3	43° 16' 07"	79° 37' 11"
5	43° 25' 31"	79° 39' 30"
6	43° 27' 57"	79° 31' 48"
7	43° 32' 42"	79° 29' 20"
8	43° 37' 26"	79° 27' 12"
9	43° 35' 12"	79° 23' 43"
10	43° 40' 04"	79° 16' 02"
11	43° 35' 05"	79° 18' 44"
12	43° 30' 10"	79° 21' 12"
13	43° 24' 58"	79° 24' 03"
14	43° 23' 38"	79° 29' 09"
15	43° 18' 57"	79° 26' 34"
16	43° 16' 20"	79° 21' 34"
17	43° 13' 27"	79° 16' 19"
18	43° 18' 00"	79° 16' 42"
19	43° 23' 01"	79° 17' 07"
20	43° 20' 15"	79° 11' 47"
21	43° 18' 01"	79° 07' 14"
22	43° 17' 42"	79° 00' 19"
23	43° 22' 08"	79° 04' 02"
24	43° 26' 25"	79° 07' 43"
25	43° 30' 55"	79° 04' 47"
26	43° 36' 29"	79° 00' 59"
27	43° 42' 13"	78° 57' 25"
28	43° 46' 29"	78° 51' 16"
29	43° 49' 45"	78° 52' 12"
30	43° 49' 49"	78° 39' 43"
31	43° 53' 13"	78° 27' 34"
32	43° 47' 05"	78° 26' 19"
33	43° 35' 34"	78° 47' 56"
34	43° 27' 38"	78° 45' 35"
35	43° 21' 36"	78° 43' 48"
36	43° 29' 30"	78° 23' 14"

Surveillance Stations
Lake Ontario
1985-86
(Continued)

Station Number	Latitude N.	Longitude N.
37	43° 23' 30"	78° 22' 09"
38	43° 22' 59"	77° 59' 22"
39	43° 29' 11"	78° 00' 04"
40	43° 35' 22"	78° 00' 46"
41	01ON02I00021	
42	43° 50' 24"	78° 02' 20"
43	43° 57' 00"	78° 02' 59"
44	43° 52' 53"	77° 54' 30"
45	43° 49' 10"	77° 46' 59"
46	43° 53' 06"	77° 41' 23"
47	43° 57' 05"	77° 35' 20"
48	46° 51' 42"	77° 31' 32"
49	43° 46' 19"	77° 26' 18"
52	43° 25' 58"	77° 42' 37"
53	43° 20' 56"	77° 42' 38"
54	43° 24' 46"	77° 34' 34"
55	43° 26' 40"	77° 26' 21"
56	43° 21' 35"	77° 30' 56"
57	43° 16' 30"	77° 35' 27"
58	43° 19' 47"	77° 26' 04"
59	43° 22' 53"	77° 17' 53"
60	43° 34' 50"	77° 11' 53"
61	43° 47' 12"	77° 09' 30"
62	43° 52' 40"	76° 59' 58"
63	43° 43' 54"	77° 01' 00"
64	43° 31' 30"	76° 55' 36"
65	43° 25' 30"	76° 52' 52"
66	43° 19' 59"	76° 50' 22"
67	43° 24' 28"	76° 47' 36"
68	43° 31' 47"	76° 43' 54"
69	43° 36' 19"	76° 42' 42"
70	43° 32' 29"	76° 37' 08"
71	43° 28' 38"	76° 31' 34"
72	43° 32' 58"	76° 31' 31'
73	43° 37' 59"	76° 17' 16"

Surveillance Stations
Lake Ontario
1985-86
(Continued)

Station Number	Latitude N.	Longitude N.
74	43° 44' 58"	76° 31' 07"
75	43° 50' 38"	76° 21' 16"
77	43° 57' 24"	76° 24' 31"
78	44° 04' 59"	76° 24' 21"
79	44° 04' 32"	76° 31' 19"
80	44° 08' 28"	76° 36' 34"
81	44° 00' 58"	76° 40' 18"
82	44° 04' 00"	76° 48' 43"
83	44° 00' 00"	76° 50' 35'
84	43° 53' 14"	76° 44' 05"
85	43° 45' 00"	79° 04' 57"
86	43° 15' 23"	79° 11' 45"
87	43° 17' 54"	77° 31' 03"
88	43° 35' 20"	76° 25' 01"
89	43° 41' 53"	76° 24' 59"
90	44° 08' 09"	76° 49' 29"
91	43° 55' 13"	78° 18' 26"
93	43° 19' 37"	78° 52' 13"
94	43° 19' 32"	77° 12' 52'
95	43° 18' 51"	77° 00' 03"
96	43° 13' 24"	79° 26' 47"
98	43° 54' 45"	76° 15' 52
209M	43° 32' 01"	79° 09' 02"
505M	43° 34' 58"	79° 05' 00"

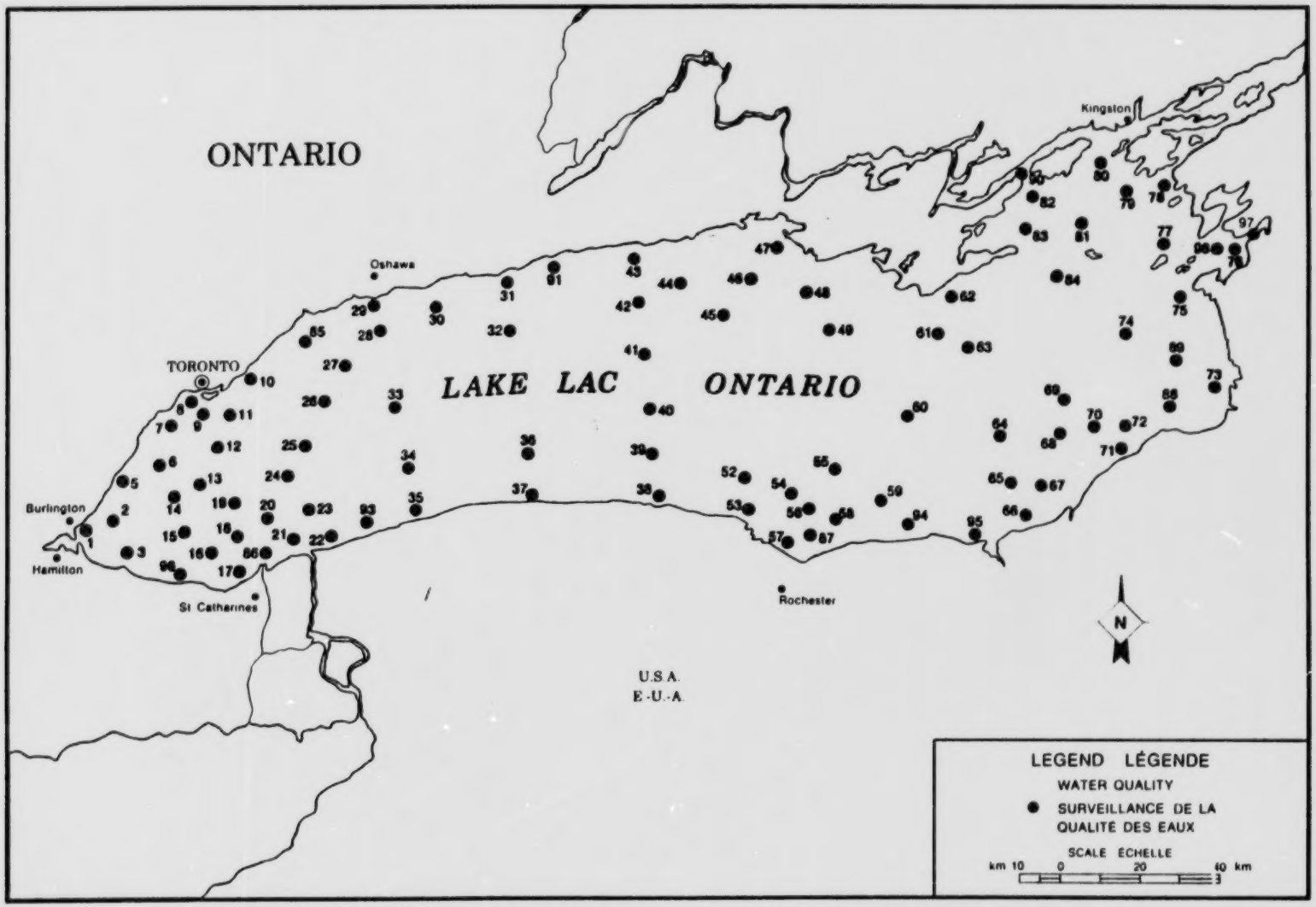


FIGURE 9 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

PROJECT DESCRIPTION — REGION/Ontario
WATER QUALITY BRANCH - 1985/86 — PROJECT NO: WQ-108

PROJECT TITLE: NIAGARA RIVER WATER QUALITY MONITORING

NATIONAL PROGRAM NAME: Canada/U.S. and Interjurisdictional Water Management — ECS CODE 1.1

STUDY TEAM: K.W. Kuntz, H. Biberhofer.

GOALS:

1. To continue collection of daily water quality samples at Fort Erie and Niagara-on-the-Lake to provide water quality records for long term trend evaluation and to provide annual estimates of material loads from Lake Erie to Lake Ontario.
2. To provide 1984 differential loading estimates for the Niagara River by Aug. 1985.
3. To continue bi-weekly suspended sediment analysis at both the source and outlets of the Niagara River.
4. In conjunction with A. El-Shaarawi, a statistical analysis of existing data will develop improved methods for estimating loading to Lake Ontario. A report will be completed by March 1986.
5. To undertake special sampling in the Niagara River as required by the RDG's office.
6. To collate and classify all data conducted to date by WQB-OR on the Niagara River by means of the IBM-PC and the Cyber computers.

RATIONALE: In Support of GLISP to fulfill Canada's surveillance and monitoring requirements on the interconnecting Channels as outlined in annexes' 11 and 12 of the 1978 GLWQA.

DESCRIPTION: In a continuing project on the Niagara River, daily water samples are collected at Niagara-on-the-Lake (since 1975) and at a new station at Fort Erie (established in Oct. 1983) by an automatic sampler and returned weekly to Burlington for analysis. Suspended sediment samples will be collected by-weekly for organic contaminants analysis. For the first time, annual loading estimates will be available for the Lake Erie input to the Niagara River and the Niagara River load to Lake Ontario. These differential loading estimates for the Niagara River have been one of the main problems for the NRTC in interpreting previous data for the NRTC report.

Considerable time will be spent analyzing data collected in previous years, to develop better methods for estimating loadings from data collected at 2 week intervals.

Membership on the Niagara-St. Lawrence Task Force will be maintained. Coordination with MOE, NYDEC and EPA will continue.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 1-2mo.

	Total	
PY TECH.	0.75	
PROF.	1.2	
TOTAL PY	1.95	
SALARIES	61.95	Using 1.2 PY "A" base at 36.0K and 0.75 PY RDG at 25.0K
O&M	6.0	
CONTRACTS		
CAPITAL	2.5	
TOTAL $	70.45	

MAP NO.	NAQUADAT	STATION LOCATION
1	00ØNO2HA0019	Niagara River at Niagara-on-the-Lake (AWQM)
32	00ØNO2HA0045	Niagara River at Fort Erie

PROJECT DESCRIPTION

WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ 109

PROJECT TITLE: ST. LAWRENCE RIVER WATER QUALITY MONITORING.

NATIONAL PROGRAM NAME: Canada-US and Interjurisdictional Water Management

ECS CODE: 1.1

STUDY TEAM: A. Sylvestre, H. Biberhofer.

GOALS:

To collect daily samples to provide long term water quality records, to estimate the annual material exit loads from the Great Lakes system and to characterize seasonal variation of the water quality of the St. Lawrence River.

To collect monthly suspended sediments samples in order to measure the concentrations of organic contaminants leaving Lake Ontario in the solid phase. To evaluate the effects of various sampling conditions on the integrity of water samples collected at Wolfe Island.

RATIONALE:

To fulfill Canada's surveillance and monitoring requirements in the interconnecting Channels in support of GLISP as outlined in the 1978 Agreement.

DESCRIPTION:

Daily samples are collected by an automatic sampler at Wolfe Island. Water samples are sent back through a personal service contract to CCIW for chemical analysis:

- daily: pH, conductivity, turbidity, TKN, NO2+NO3, NH3 and T.P.
- weekly: Major ions and trace metals
- composite - Radioactivity.

A monthly suspended sediment sampling program began in 1982 and will continue this year. The samples will be analysed for PCB's, OC's, PAH's, and T.M's.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 60 d

	Total
PY TECH	0.05
PROF.	0.65
TOTAL PY	0.70
SALARIES	25.62*
O&M	3.0
CONTRACTS	2.5
CAPITAL	1.5
TOTAL $	32.62

* Using 0.65 PY ("A" Base) at 37.5K and 0.05 PY at 25K (RDG)

MAP NO.	NAQUADAT	DESCRIPTION
2	00ØNO2MA0030	St. Lawrence River at Wolfe Island

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO:WQ-110

PROJECT TITLE: PRECIPITATION CHEMISTRY NETWORK

NATIONAL PROGRAM NAME: Canada/U.S. and Interjurisdictional Water Management. ECS CODE 1.1

STUDY TEAM:
C.H. Chan & L.H. Perkins.

GOALS: To provide long term records of chemical composition of atmospheric deposition in the Great Lakes Basin.
To provide estimates of material loadings to the Great Lakes.

RATIONALE: To fulfill Canada's surveillance and monitoring activities on atmospheric inputs as outlined in the 1978 Canada/US GLWQA.

DESCRIPTION: This is an on-going program on Great Lakes Atmospheric deposition.
Work scheduled for this year is to establish two more stations (Sarnia & Port Stanley) by September/85 to provide better areal coverage of Lake Huron and Lake Erie.
Sampling protocol will be reviewed and revised in necessary to CAPMON protocol.
Participation of IJC work groups and provide inputs into atmospheric component and loading estimates to Lake Task Force as required.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 90

	Total
PY TECH.	0.5
PROF.	0.2
TOTAL PY	0.7
SALARIES	26.0
O&M	15.0
CONTRACTS	10.0
CAPITAL	6.0
TOTAL $	57.00

MAP NO.		NAQUADAT NO.	STATION LOCATION
15	A.A.P.S.	33ØNO2AC0700 Wet	Squaw Bay on Mrs. June Huston
	A.A.P.S.	33ØNO2AC0100 Bulk	Property, Sibley Peninsula, (Organic)
16	A.A.P.S.	33ØNO2BF0701 Wet	Sault Ste. Marie at airport
		33ØNO2BF0101 Bulk	near the weather office
17	A.A.P.S.	33ØNO2CG0701 Wet	South Baymouth research station
	A.A.P.S.	33ØNO2CG0101 Bulk	Tehkummah Manitoulin Island
18	A.A.P.S.	33ØNO2FA0700 Wet	Wiarton airport near the weather
		33ØNO2FA0100 Bulk	office
19	A.A.P.S.	33ØNO2FE0700 Wet	Goderich pollution control plant
	A.A.P.S.	33ØNO2FA0100 Bulk	
20	A.A.P.S.	33ØNO2GH0700 Wet	Pelee Island airport near weather
	A.A.P.S.	33ØNO2GH0100 Bulk	station
21	A.A.P.S.	33ØNO2GC0701 Wet	Long Point, at the mouth of Big Creek
	A.A.P.S.	33ØNO2GC0101 Bulk	Moniteq Trailer Park Port Royal
22	A.A.P.S.	33ØNO2HA0700 Wet	Niagara-on-the-Lake at daily sampling
	A.A.P.S.	33ØNO2HA0100 Bulk	Trailer Located at the mouth of the Niagara River
23	A.A.P.S.	33ØNO2HB0705 Wet	Burlington, at a Halton Region
	A.A.P.S.	33ØNO2HB0105 Bulk	pumping station on Waterdown Road
25	rain	33ØNO2HC0101 Bulk	Woodbridge at the meteorological
	A.A.P.S.	33ØNO2HC0701 Wet	research station on Weston Road and Hwy. 7
26	A.A.P.S.	33ØNO2HK0700 Wet	Trenton Armed Forces Base near
	A.A.P.S.	33ØNO2HK0100 Bulk	weather station
24		33ØNO2BA0702 Wet	Rossport North Shore of Lake Superior
		33ØNO2BA0102 Bulk	on the Property of Mrs. Molinski
27		33ØNO2BD0701 Wet	Wawa East Shore of Lake Superior
		33ØNO2BD0101 Bulk	on the Property of Brad Buck
28		33ØNO2BF0702 Wet	Turkey Lake Batchawana Mountain Met. Platform at LRTAP calibrated watershed 40 miles north of Sault St. Marie (Organic)
43		-	Sarnia
44		-	Port Stanley

PROJECT DESCRIPTION REGION Ontario

WATER QUALITY BRANCH - 1985/86 PROJECT NO:WQ-122

PROJECT TITLE: NORTHWESTERN ONTARIO NETWORK

NATIONAL PROGRAM NAME Can. U.S. Interjurisdictional Water Management ECS CODE 1.1

STUDY TEAM: J. Merriman, J. Fischer.

GOALS: To maintain the water quality network at four stations in northwestern Ontario. Finalize report by October, 1985, on Rainy River Water Quality. Fulfill duties as required as member of the Rainy River Study Plan Workgroup.

RATIONALE: These rivers are of international and interprovincial significance. Monitoring water quality conditions on these interjurisdictional waters will provide a long term database for future reference.

DESCRIPTION: Four stations on the Rainy, English and Winnipeg Rivers will be sampled bi-weekly by local collectors for physical parameters, major ions, nutrients and metals. Sampling for OC's, PCB's will be done monthly.

A draft report on the water quality of the Rainy River will be finalized.
Duties on the Rainy River Study Plan Workshop will be carried out as required under the direction of the Rainy River Pollution Control Board.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 60d

	Total
PY TECH.	0.1
PROF.	0.25
TOTAL PY	0.35
SALARIES	11.9*
O&M	6.25
CONTRACTS	2.25
CAPITAL	-
TOTAL $	20.4

* Using 0.25 "A" base PY at 37.6K and 0.1 term PY at 25.0K

MAP NO.	NAQUADAT NO.	DESCRIPTION
		North Western Ontario Network
5	00ØNO5PC0002	Rainy River at outlet of Rainy Lake
6	00ØNO5PD0001	Rainy River near outlet at Lake of the Woods
7	00ØNO5PE0002	Winnipeg River at Whitedog Falls Generating Station
8	00ØNO5QE0002	English River at Caribou Falls Generating Station

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-132

PROJECT TITLE: UPGRADING OF NIAGARA RIVER WATER QUALITY STATIONS FOR CONTINUOUS SAMPLE COLLECTION.

NATIONAL PROGRAM NAME Canada/U.S. and Interjurisdictional Water Management. ECS CODE 1.1

STUDY TEAM: D. Warry, H. Biberhofer, J. Fischer, K. Kuntz.

GOALS:

1) To install multi-pump water delivery systems with three independent intakes, at both the Niagara-on-the-Lake and Fort Erie stations by July, 1985.
2) To install vibration sensors on the Westfalia centrifuges at these stations as well as related pump control circuitry by September, 1985.
3) To improve sample integrity by improving sample collector and sample storage using refrigeration by November, 1985.

RATIONALE:

The system will provide an ample volume of water for both present and future sampling requirements, with increased safety, dependability, ease of operation and improved sample integrity.

DESCRIPTION:

The multi-pump water delivery systems, complete with vibration sensors and related pump control circuitry will be installed by July, 1985. The vibration sensor which responds to destructive vibration by shutting the machine down, will prevent damage and extensive repairs. An early warning alarm system will provide a basis for maintenance action.

To improve sample integrity at the automatic sampling stations, the following changes are suggested for collecting and maintaining the samples once the water reaches the trailer. Storing the samples in a small fridge, which would be modified by installing ports for sample inflow and overflow drains, should improve nutrient and TP data by retarding the reactions associated with sample storage. Integrated with the fridge would be a manifold comprised of 8solenoids controlled by a multi-channel timer, which would be activated sequentially on a daily basis, filling the 2 litre bottles in the fridge. If a micro-processor unit is implemented, it is possible to incorporate flow through probes for various parameters such as temp., conductivity, DO2, etc. and through digitization of the output signal from the meter, record the data in the micro-processor which could perform at a greater sampling rate than the 2 litre bottle collection. The recorded data could be retrieved during routine sample collection.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME N.A.

	Total
PY TECH.	0.50
PROF.	0.10
TOTAL PY	0.60
SALARIES	16.00*
O&M	6.00
CONTRACTS	4.00
CAPITAL	10.00
TOTAL $	36.00

* Using 0.1 PY "A" base at 35.0K and 0.5 term PY at 25.0K.

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-133

PROJECT TITLE: OTTAWA RIVER NCR - WATER QUALITY

NATIONAL PROGRAM NAME: Canada-US and Interjurisdictional Water Management. ECS CODE 1.1

STUDY TEAM: J. Merriman

GOALS:

To prepare a draft report on the "Water quality of the Ottawa River" in the National Capital Region by May, 1986. Fulfill duties as required by the Ottawa River Co-ordinating Committee.

RATIONALE:
The Ottawa River is an important interprovincial river. Remedial measures have been completed in the National Capital Region. There was significant federal funding for the remedial measures and the purpose of the surveys is to evaluate water quality changes.

DESCRIPTION:

The draft report will summarize findings from the 84-85 surveys carried out in the National Capital Region and compare results from previous surveys before the completion of the sewage treatment facility. Changes in water quality will be documented. Duties for the Ottawa River Co-ordinating Committee will be completed as requested.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME _____

	Total
PY TECH. PROF.	0.3
TOTAL PY	0.3
SALARIES	11.2
O&M	2.0
CONTRACTS	-
CAPITAL	-
TOTAL $	13.2

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-120

PROJECT TITLE: SUPPORT NETWORK

NATIONAL PROGRAM NAME Water Quality Management Data ECS CODE 1.3

STUDY TEAM: L.H. Perkins & A.S. Sylvestre

GOALS:
To oversee and arrange the collection of water samples at three GEM stations for chemical analyses to maintain and update GEM datafile on NAQUADAT.

RATIONALE:
This is an on-going sampling program in support of IWD's participation in WHO's global Environmental Monitoring Program.

DESCRIPTION:
Water samples will be collected at the three designated GEM stations (1) N. Magnetawan River, (2) Goulais River and 13) St. Clair River at Huron on a monthly basis by lay collectors.

These samples will be analysed for nutrients, major ions and heavy metals.

A review and evaluation of past data from these stations will be reported by December, 1985.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 90

	Total
PY TECH.	0.1
PROF.	0.3
TOTAL PY	0.4
SALARIES	18.0
O&M	4.2
CONTRACTS	-
CAPITAL	-
TOTAL $	22.20

MAP NO.	NAQUADAT NO.	STATION LOCATION
29	00ØN02BF0001	Goulais River near Searchmount
30	00ØN02EA0001	N. Magnetawan River above Pickerel Lake
31		St. Clair River at Huron

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-121

PROJECT TITLE: NORTHERN BASELINE NETWORK

NATIONAL PROGRAM NAME Water Quality Management Data ECS CODE: 1.3

STUDY TEAM: R. McCrea and J. Fischer

GOALS:

(1) To monitor the presence of persistent organic contaminants and heavy metals in the five major rivers of Ontario Artic Watershed.
(2) A report will be prepared, based on four years data, to establish baseline water quality conditions in all five rivers (November, 1985).

RATIONALE:
Ontario's Artic Watershed comprises over half of the land mass of Ontario; the northern portion of the basin is of major national and international importance as a nesting and feeding area for migratory birds. The five rivers which drain this region are essential resources to the native population. Sampling sites are located adjacent to the Indian reserves, and provide a data base suitable for monitoring persistent contaminants, establishing baseline water quality conditions and assessing the impact of future developments in the basin. At present, organic contaminants such as PCB's have been found in all rivers at levels comparable to the Niagara River.

DESCRIPTION:
Water quality sampling will be conducted near the mouth of the Moose, Albany, Attawapiskat, Winisk and Severn Rivers. All stations will be sampled by lay collectors on a monthly basis for the analyses of PCB's, organochlorine pesticides and heavy metals (Goal 1). Considerable time and effort will be spent preparing figures and graphs as well as report writing (GOAL 2).

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 90d

	Total
PY TECH.	.10
PROF.	.25
TOTAL PY	.35
SALARIES	16.0
O&M	1.2
CONTRACTS	2.6
CAPITAL	-
TOTAL $	19.80

MAP NO.	NAQUADAT NO.	STATION LOCATION
		Northern Baseline
9	00ØNO4BA0010	Severn River just upstream of Fort Severn
10	00ØNO4DC0010	Winisk River just upstream of Winisk
11	00ØNO4FC0010	Attawapiskat River just upstream of Attawapiskat
12	00ØNO4HA0010	Albany River just downstream of Fort Albany (South channel)
13	00ØNO4KA0010	Moose River (West) West channel upstream of Moosonee
14	00ØNO4KA0011	Moose River (East) East Channel upstream of Moosonee

All of the above stations are sampled monthly for PCBs, organochorine pesticides and heavy metals

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-130

PROJECT TITLE: WQB REGIONAL MANAGEMENT AND ADMINISTRATION, ACTIVITIES COORDINATION AND AGREEMENT NEGOTIATION.

NATIONAL PROGRAM NAME Water Quality Management Data ECS CODE 1.3/1.1/4.1

STUDY TEAM: F.J. Philbert, J. Merriman, V. Walker, D. Warry, Head G.L.W.Q.D.

GOALS:

1) To negotiate a water quality agreement with the Province of Ontario.
2) To provide W.Q. information and advice to E.P.S.- Ont. Region regarding the Hemlo Gold Mining Development.
3) To coordinate WQB-OR analytical needs with N.W.Q.L.
4) To provide typing and administrative support to WQB-OR.

RATIONALE: In support of Federal Provincial Agreements

DESCRIPTION: Activity (1) requires extensive background preparation and information gathering prior to actual negotiations with the Province of Ontario. This activity will rely heavily on advice and guidance provided by WQB-HQ.

Goal (2) will require research and preparation of information summaries when needed.

Goal (3) requires an ongoing dialogue with NWQL as well as formal meeting once every two months or so.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME _____

	Total
PY TECH.	
PROF.	2.00
TOTAL PY	2.00
SALARIES	74.75
O&M	38.0
CONTRACTS	
CAPITAL	12.5
TOTAL $	125.25

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-106

PROJECT TITLE: TOXIC CHEMICALS MONITORING OF THE ST. CLAIR RIVER

NATIONAL PROGRAM NAME Toxic Chemicals ECS CODE 4.1

STUDY TEAM: C.H. Chan, A. Sylvestre, Head, G.L.W.Q.D.

GOALS: To carry out a feasibility study to establish and operate two water quality monitoring stations at the inlet and outlet of the St. Clair River for the purpose of identifying and quantifying toxic chemical loadings from the St. Clair River.

RATIONALE: This project is proposed to fulfill Canada's committment to carry out monitoring toxic substances in the St. Clair River under 1978 GLWQA as outlined in the GLISP.

DESCRIPTION:

Depending on available resources and PY's from HQ/Reg. office, this project will be implemented in the following stages:

(1) A review of past and present background information on the water quality of the St. Clair River (June/85).
(2) Field reconaissance to identify potential sites for monitoring stations (Aug./85).
(3) Construction and installation of sampling stations. (Oct./85).
(4) Commence water and suspended sediment sampling on a bi-weekly basis for contaminant analyses.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 90d

	Total
PY TECH.	
PROF.	1.0
TOTAL PY	1.0*
SALARIES	35.55
O&M	
CONTRACTS	30.0
CAPITAL	60.0
TOTAL $	125.55

* 0.45 PY is from A-base with 0.55 PY to be provided from RDG resources.

MAP NO.	NAQUADAT	STATION LOCATION
41	-	St. Clair R. at Inlet
42	-	St. Clair R. at Outlet

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO:WQ-111

PROJECT TITLE: ORGANICS IN ATMOSPHERIC PRECIPITATION

NATIONAL PROGRAM NAME Toxic Chemicals ECS CODE 4.1

STUDY TEAM: C.H. Chan & L.H. Perkins

GOALS: To establish a small network of precipitation stations within the Great Lakes Basin for determining toxic contaminant levels in wet precipitation.

RATIONALE: To fulfill Canada's surveillance and monitoring activities on atmospheric deposition of toxic substances as outlined in 1978 Can/US GLWQA.

DESCRIPTION: To continue sample collection from Sibley Park, South Bay Mouth, Pelee Island and Wolfe Island on a bi-weekly interval for trace organic analyses.
A report titled "Trace organics in Lake Superior Atmospheric precipitation" will be prepared by Dec./85.

Subject to funding from GLWQP, an additional network of 8 stations will be established in the Great Lakes Basin (2 per lake). Sampling protocol for this network will be closely co-ordinated with NWRI. Results from this network will form a report on Wet Deposition of trace organics in the Great Lakes Basin in 1986.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 90d

	Total
PY TECH.	0.5
PROF.	0.4
TOTAL PY	0.9
SALARIES	30.5
O&M	26.0
CONTRACTS	6.0
CAPITAL	32.0
TOTAL $	94.50

* Using 0.8 PY ("A" base) and 35.0K and 0.1 PY (RDG at 25.0K)

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-123

PROJECT TITLE: WATER QUALITY MONITORING OF THE OTTAWA RIVER.

NATIONAL PROGRAM NAME Toxic Chemicals

ECS CODE: 4.1

STUDY TEAM: R. McCrea and J. Fischer

GOALS:

(I) Monitor persistent organic contaminants, heavy metals, ionic constituents and microbiological contamination of the Ottawa River.

(II) Prepare two reports detailing the construction and operation of the Lemieux Island sampling station, and interpretation of six years data just upstream of the Lemieux site (Dec./85).

RATIONALE:

To provide comprehensive water quality data sets suitable for establishing spatial and temporal trends, compliance with water quality objectives as well as an estimation of loadings of organic contaminants, heavy metals and ionic constituents in the Ottawa River.

DESCRIPTION:

Samples will be collected at the Lemieux site, which is located in the National Capital Region for nutrients on a daily basis, and PCB's, pesticides, chlorobenzenes, heavy metals, ionic constituents and bacti on a weekly basis. Contaminant concentrations will be determined from raw and centrifuged water as well as suspended sediment samples. Water samples will also be collected by lay collectors on a monthly basis for contaminants at three other locations on the Ottawa River, these include: Lake Timiskaming, Pembroke and Hawkesbury.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 90 d

	Total
PY TECH.	0.3
PROF.	0.6
TOTAL PY	0.9
SALARIES	29.52
O&M	8.5
CONTRACTS	-
CAPITAL	-
TOTAL $	38.02

Using 0.6 PY "A" base at 36.7K and 0.3 term PY at 25.0K.

MAP NO	NAQUADAT NO.	DESCRIPTION	PARAMETERS
		North Western Ontario Network	
33	00ØNO2LA2652	Ottawa R. at Lemieux Island	nutrients (daily) PCBs, pesticides, chlorobenzenes, heavy metals, ionic constituents and bacti (weekly)
34	-	Lake Timiskaming	Sampled by lay collectors monthly for contaminants
35	-	Ottawa R. at Pembroke	
36	-	Ottawa River at Hawkesbury	

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-131

PROJECT TITLE: OTTAWA RIVER TOXIC CHEMICALS

NATIONAL PROGRAM NAME TOXIC CHEMICALS ECS CODE 4.1

STUDY TEAM: J. Merriman

GOALS: To finalize reports on studies carried out in 1982 on contaminants in the bottom sediments, suspended sediments and water of the Ottawa River. One report will be titled "Contaminants in the Bottom Sediments of the Ottawa River" and the other will be titled "Trace Organic contaminants in the water and suspended sediments of the Ottawa River". These will be finalized by December, 1985.

RATIONALE: The Ottawa River is a very important interjurisdictional river. As pointed out in Task Force Reports to the Ottawa River Co-ordinating Committee, few studies have been done on contaminant levels in the Ottawa River.

DESCRIPTION: Summary reports will be finalized detailing results of a bottom sediment survey conducted in 1982 for metals and trace organic contaminants. As well, a final summary report will be produced on a suspended sediment and water study that was conducted at two sites on the river during 1982.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME _____

	Total
PY TECH.	
PROF.	0.2
TOTAL PY	0.2
SALARIES	7.0
O&M	1.5
CONTRACTS	-
CAPITAL	-
TOTAL $	8.5

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-134

PROJECT TITLE: CONTINUOUS SAMPLING OF ORGANIC CONTAMINANTS IN THE NIAGARA RIVER

NATIONAL PROGRAM NAME: Toxic Chemicals. ECS CODE: 4.1

STUDY TEAM: R. McCrea, J. Fischer, D. Warry

GOALS:
Compare estimates of organochlorine contaminant loadings derived from discrete and continuous sampling programs with the goal of recommending an improved sampling strategy for the Niagara River.

RATIONALE:
A wide range of organochlorine contaminants have been identified in recent years in the Niagara River. It is thought that there are several major sources of these contaminants, which include: industrial and municipal outflows and leachates from chemical waste dumps. The resulting river contamination has been shown to be variable on a temporal basis. The continuous sampling system will be used to collect time-integrated samples on a weekly basis. Data generated from this study will compare to that generated from the discrete sampling program already in place with a view to finding an optimal sampling strategy.

DESCRIPTION:
A Westfalia continuous flow centrifuge will be installed at Niagara-on-the-Lake. This unit will be equipped with a vibration sensor and related circuitry to monitor the mechanical condition of the centrifuge. A system of relays and pump control circuitry will be installed to prevent sample loss in the event of power failures. Suspended sediment and large volume aqueous phase samples will be collected in conjunction with the ongoing sampling program at NOTL, and analyzed for PCB's, organochlorine pesticides and chlorobenzenes.

Based on results of this experiment, two reports will be prepared, these are:
1) Construction and Operation of a continuous sampling system for the determination of organochlorine contaminants in water and suspended sediments. (With Dr. P. Goulden, NWRI; Fiscal 1986).
2) A comparison of discrete and continuous sampling for the determination of organochlorine contaminants. (With Dr. A.H. El-Shaaraw, NWRI, fiscal 1986).

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME 60d

	Total
PY TECH.	0.1
PROF.	0.15
TOTAL PY	0.25
SALARIES	7.75*
O&M	4.30
CONTRACTS	-
CAPITAL	2.50
TOTAL $	14.55

* Using 0.15 PY "A" base at 35.0K and 0.1 Term PY at 25.0K

PROJECT DESCRIPTION
WATER QUALITY BRANCH - 1985/86

REGION/Ontario
PROJECT NO: WQ-135

PROJECT TITLE: OTTAWA RIVER SPECIAL STUDY (BIOTA)

NATIONAL PROGRAM NAME Toxic Chemicals ECS CODE 4.1

STUDY TEAM: J. Merriman, R. Stevens.

GOALS:

1. To determine contaminant levels in various aquatic compartments of five sites on the Ottawa River. Findings will be compared to previous work, carried out in the river and recommendations will be made for future biomonitoring. This is a joint study with J. Metcalfe of ECD-NWRI.

2. Establish a sampling station at Chats Falls for OC's PCB's to confirm earlier findings of elevated PCB's.

RATIONALE: Previous work has shown both elevated levels of metals and organic contaminants in various reaches of the Ottawa River. This study will provide information on the best media to sample in and ongoing program to monitor contaminant levels.

DESCRIPTION:

1. Sampling at the five sites will include water, bottom sediment and benthos. Analyses will include trace metals (As, Se, Cd, Cr, Co, Cu, Pb, Ni, Zn and Hg) OC's PCB's, Chlorobenzenenes and chlorophenols.

A summary report of the findings will be prepared by March 1986 if data is received from the laboratory by Dec. 1985.

2. Sampling for organics at Chats Falls will be arranged through Ontario Hydro and monthly samples will be collected commencing in April, 1985.

RESOURCES ($'000)

ACCEPTABLE ANALYSIS TURNAROUND TIME _____

	Total
PY TECH.	
PROF.	0.2
TOTAL PY	0.2
SALARIES	7.0
O&M	1.3
CONTRACTS	-
CAPITAL	-
TOTAL $	8.3

MAP NO.	NAQUADAT NO.	STATION LOCATION
37	-	Ottawa R. at Petawawa
38	-	Ottawa R. at Castleford
39	-	Ottawa R. at Tredwell
33	-	Ottawa R. at Lemieux Island
40	-	Ottawa R. at Chats Falls Sampling by Ontario Hydro for organics (monthly)

FIGURE 11 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

D.4 WESTERN AND NORTHERN REGION

Région de l'Ouest et du Nord

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
306-85 International Automatic Water Quality Monitoring

SUBMITTER - 0140
ECS PROGRAM - 1.1 - Canada/US and Interjurisdictional Water Management
DURATION - Ongoing

OBJECTIVES

(1) To provide continuous surveillance of the Red River at the Canada - U.S. border in order to detect and document the effect of any industrial and municipal waste spills and other pollution sources originating in the U.S. (2) To acquire water quality data in order to meet obligation of the Red River Pollution Control Board, IJC.

RATIONALE

Under IJC the Red River monitoring was established in 1968 to provide a continuous surveillance of the water quality at the Canada - U.S. border at Emerson. Since 1977, the potential effect of the Garrison Diversion on the Red River water quality has provided an additional reason for maintaining this monitor.

DESCRIPTION

A Schneider Robot RM25 monitor is operated on a continuous basis on the Red River at Emerson. Parameters measured are DO, pH, conductivity, chloride and temperature. Data are collected and transmitted using a LaBarge DCP via GOES satellite and stored at Camp Springs, MD. These data are retrieved and decoded by the Branch computer in Regina. Computed monthly data are distributed to various agencies. Monthly samples are also collected to allow monitor to laboratory comparisons, and, to supplement the monthly reports with complete parametric coverage.

COORDINATOR(S) - Chacko

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.15		-	
	PY Tech	0.09	0.03	0.35		0.53	PY TOTAL
	Salary	1.81	0.85	17.20		18.05	
	O & M	1.23	0.58	5.50		7.08	
	Capital	0.58	0.27	2.00		2.27	
						27.40	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total		0.09	0.03	0.50		0.53	
Total Dollars		3.62	1.70	25.70		27.40	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
308-85 Revised Red River Monthly Report Format

SUBMITTER - N/A
ECS PROGRAM - 1.1 - Canada/US and Interjurisdictional Water Management
DURATION - 1984/85

OBJECTIVES

1 to provide useful, comprehensive monthly data reports for the Red River monitor by placing these data in the context of the historical data

2 to provide direct input to the annual report

RATIONALE

Under the International Joint Commission (IJC) directives, the Branch operates a continuous water quality monitor on the Red River at Emerson. These data must be reported monthly and annually relative to trends and objectives in an effective manner.

DESCRIPTION

At the present time, monthly reports contain only data for a single month. The lack of a historical data reference for these reports frequently causes water quality changes which are consistent with historical patterns to be of concern or alternatively, may result in deviations from the "historical norm" to be unnoticed. This revised report format will provide ready comparison with data from the preceding 11 months as well as the long term patterns. Additionally, the December report will be directly applicable to the monthly report.

COORDINATOR(S) - Gregor

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.1		0.1	PY TOTAL
	PY Tech						
	Salary			4.5		4.5	
	O & M			10.0		10.0	
	Capital					-	
						14.5	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.1		0.1	
Total Dollars				14.5		14.5	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
315-85 Prairie Provinces Water Board Monitoring

SUBMITTER - 0462
ECS PROGRAM - 1.1* - Canada/US and Interjurisdictional Water Management
DURATION - Ongoing since 1978

OBJECTIVES

To conduct monthly water quality surveys at eleven interprovincial locations.

To prepare monthly detailed data reports for the PPWB.

RATIONALE

The Branch, in order to fulfill its mandate and the terms of an agreement with the Prairie Provinces Water Board, is required to monitor the quality of selected interprovincial rivers.

DESCRIPTION

A total of eleven interprovincial sites are sampled monthly by the branch for a wide spectrum of parameters. The information obtained is verified monthly and reports are prepared for the PPWB. These stations represent river systems in both the Canadian Shield and Plains physiographic regions of the western and northern region.

COORDINATOR(S) - Crosley (Man., Sask.) Block (Alta., NWT.)

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof		0.04	0.80		-	
	PY Tech	0.17	0.06	0.75		1.65	PY TOTAL
	Salary	3.31	3.20	56.00		59.2	
	O & M	2.25	1.22	21.10		22.32	
	Capital	6.42	3.49	10.73		14.22	
						95.74	TOTAL $
Recov.	PY Prof						
	PY Tech	0.84	0.32			0.32	PY TOTAL
	Salary	16.75	9.10			9.10	
	O & M	11.39	6.19			6.19	
	Capital					-	
						15.29	TOTAL $
PY Total		1.01	0.42	1.55	0	1.97	
Total Dollars		40.12	23.20	87.83		111.03	

* Affiliated ECS Program(s) - 1.3, 4.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
315-85 Prairie Provinces Water Board Monitoring

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
22	South Saskatchewan River at Highway # 41	00AL05AK0001	M	ALK_P
23	Red Deer River near Bindloss	00AL05CK0001	M	ALK_P_R ALK_T
24	Beaver River at Beaver Crossing	00AL06AD0001	M	ALK_T_R AL_D
25	Churchill River below Wasawakasik Lake	00SA06EA0003	M	AL_E AS_D_D
27	Carrot River at Turnberry	00SA05KH0002	M	B_D_D CA
28	Battle River near Unwin	00SA05FE0001	M	CHL_A_D CL
29	Red Deer River near Erwood	00SA05LC0001	M	CN COLI_F_F
30	Qu'Appelle River 3.2 Km. South of Welby	00SA05JM0014	M	COLI_T_F COLO_TR_R
31	Assiniboine River at Highway # 8 below Kamsack	00SA05MD0002	M	COND_F COND_L_R
32	Saskatchewan River above Carrot River	00MA05KH0001	M	CR_T C_DO_D
94	North Saskatchewan River at Lea Park	00AL05EF0001	M	C_PO F
				FE_D_D
				HERB
				HG_T
				K
				MET_T
				MG
				MN_D_D
				NA
				NH3_T
				NO23_D
				N_D_D
				N_D_L
				N_P
				O2_D
				OC/PCB
				PHENOL
				PH_F
				PH_L_R
				PIC
				P_D_D
				P_OR_D
				P_T
				RES_FNF
				RES_NF
				SE_D_D
				SIO2
				SO4
				SULFIDE
				TEMP_F
				TEMP_L_R
				TURB_F
				TURB_L_R

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
317-85 East Poplar River Bilateral Monitoring Agreement

SUBMITTER - 0001 Canada/US and
ECS PROGRAM - 1.1 - Interjurisdictional Water Management
DURATION - Ongoing

OBJECTIVES

To provide ongoing surveillance and an annual description of ground water and surface water quality conditions in the East Poplar River Basin near the International Border and to provide support to a Bilateral Monitoring Committee.

RATIONALE

A Bilateral Monitoring Arrangement has been signed by Canada, Saskatchewan, Montana and the U.S.A. Under the terms of the arrangement, Environment Canada is essentially committed to monthly sampling of the East Poplar River, reporting of surface water data, raising and resolving concerns, preparing reports, reviewing groundwater data, etc. All this is in regards to the Saskatchewan power plant operation near the International Border on the East Poplar River.

DESCRIPTION

Under the terms of the Poplar River Bilateral Monitoring Arrangement, the Branch is committed to: monitoring water quality, maintaining a data base and, upholding other obligations under the Bilateral Agreement.

The resources required for this project have been included in Project 304. Refer to Project 304 for Sampling Matrix and Analytical Requirements for Station No. 7, East Poplar River at International Boundary.

COORDINATOR(S) - Gummer, Crosley, McNaughton

RESOURCES

N/A

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
340-85 International Water Quality Objectives

SUBMITTER - N/A
ECS PROGRAM - 1.1 - Canada/US and Interjurisdictional Water Management
DURATION - Ongoing

OBJECTIVES

Initiate and implement negotiations with pertinent officials, with respect to the establishment of water quality objectives at specific transboundary locations.

RATIONALE

Within Western and Northern Region, there is a significant amount of transboundary drainage. For those streams which cross international or territorial borders, the federal government has a clear responsibility to promote the establishment of water quality objectives.

DESCRIPTION

During the year 1984/85, negotiations will continue between U.S.A. and Canadian agencies on the establishment of objectives for the Souris River at both transboundary locations. This will involve development of a Canadian negotiating strategy (i.e. Canada, Saskatchewan and Manitoba), meeting with U.S.A. counterparts, review of data and criteria information and ultimately objectives development.

COORDINATOR(S) - Thomson

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.65		0.65	PY TOTAL
	PY Tech						
	Salary			26.00		26.00	
	O & M			7.50		7.50	
	Capital					-	
						33.50	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.65		0.65	
Total Dollars				33.50		33.50	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
341-85.Interprovincial and Federal WQO Promotion and Development

SUBMITTER - N/A
ECS PROGRAM - 1.1 - Canada/US and Interjurisdictional Water Management
DURATION - Ongoing

OBJECTIVES

Provide ongoing assistance and advice upon request to WQB-W&NR staff and to promote and assist in the application of water quality objectives for interprovincial waters; and promote and develop water quality management strategies for federal waters.

RATIONALE

Other divisions of WQB, W&NR, other federal agencies as well as provincial governments are involved in activities that may either support or benefit from the support of the Water Quality Objectives Division. Input to these activities is required on a continuing basis from WQO Division in order that maximum, mutual benefit is achieved.

DESCRIPTION

Support and advice, with respect to water quality objectives, will be given to the Branch representative on the PPWB Committee on Water Quality, Branch staff and, where feasible, to individual provinces. Contact will be developed and maintained with other federal agencies with regard to the promotion of water quality objectives.

COORDINATOR(S) - Thomson

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.3		0.3	PY TOTAL
	PY Tech						
	Salary			12.0		12.0	
	O & M			5.0		5.0	
	Capital					-	
						17.0	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.3		0.3	
Total Dollars				17.0		17.0	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
342-85 Water Quality Objectives Evaluation

SUBMITTER - N/A
ECS PROGRAM - 1.1 - Canada/US and Interjurisdictional Water Management
DURATION - Ongoing

OBJECTIVES

To review and revise, where necessary, the existing Regional plan for the Water Quality Objectives Division; to maintain knowledge of policy and technical advances; develop and review surveillance monitoring strategies and resultant data for relevant locations.

RATIONALE

In order to maintain orderly and logical operation of the Water Quality Objectives Division as well as contribute to the Long Term Operational Planning process, the Division regional plan must be kept current. One method of doing this is through maintenance of a continual awareness of advances in related technology and policy. This allows an evaluation of current procedures and appropriate revisions. Compliance monitoring is also a form of water quality objectives evaluation. Not only does it serve to evaluate the quality of water it also points out shortfalls in technologic or strategic design, where appropriate revisions should be made.

DESCRIPTION

Based on the findings of meetings with WQB and other government agencies, and a review of relevant literature, the operational plan will be updated. Transboundary streams will be ranked according to their need for objectives. Interviews will be prepared and conducted for the position of water quality specialist.

COORDINATOR(S) - Thomson

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.5		0.5	PY TOTAL
	PY Tech						
	Salary			20.0		20.0	
	O & M			5.0		5.0	
	Capital					-	
						25.00	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.5		0.5	
Total Dollars				25.0		25.0	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
357-85 Cumberland Marshes Water Quality Summary Report

SUBMITTER - 0003
ECS PROGRAM - 1.1 - Canada/US and Interjurisdictional Water Management
DURATION - 1984/85 and 1985/86

OBJECTIVES

1 To summarize the water quality data collected over the last five years for the Cumberland Marshes in order to assess the impacts of the Ducks Unlimited project

2 To recommend future monitoring and assessment needs and strategies

RATIONALE

The development and operation of the Cumberland Marshes Ducks Unlimited project has the potential to alter the quality of the Birch and Saskatchewan Rivers. Monitoring has continued for five years and a thorough review is warranted.

DESCRIPTION

Annual reports have been published in the preceding years. During FY 84/85 a review of all available data was undertaken by WQB staff for the Committee on Water Quality in order to evaluate and synthesize the data base and report on the monitoring activities. This report will be finalized this year.

COORDINATOR(S) - Gregor, Crosley, Vaughan

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.15		0.15	PY TOTAL
	PY Tech					-	
	Salary			6.00		6.00	
	O & M			1.00		1.00	
	Capital					-	
						7.00	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.15		0.15	
Total Dollars				7.00		7.00	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
367-85 Poplar River Data Base Interpretation

SUBMITTER - 0003
ECS PROGRAM - 1.1 - Canada/US and Interjurisdictional Water Management
DURATION - 1984-86

OBJECTIVES

(1) To compile onto RS1 tables all water quality data for the Poplar River since approximately 1965. (2) To study the data base in order to determine whether it is sufficient for the characterization of the ground and surface water quality in the area. (3) To write an interpretive report showing the relationships between coal mining in the area and changes in ground and surface water quality over the period of the record, if warranted by the data base.

RATIONALE

Water quality data has been collected in the Poplar River area for approximately 20 years. In 1981, the Bilateral Monitoring Committee of the IJC started producing yearly reports. These reports are very brief and do not go into much detail on water quality. It is necessary to know if the existing water quality data base can be used for a detailed hydrochemical report on the Poplar River Area. If the data base were judged satisfactory, then an interpretive could be written, integrating both the ground and surface water quality data.

DESCRIPTION

This project will consist of three parts: (1) data input to RS1 tables from available sources, (2) data inspection and overall appraisal, and (3) report preparation, if necessary.

COORDINATOR(S) - D. McNaughton

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.26	0.01	-	
	PY Tech			0.10		0.37	PY TOTAL
	Salary			10.20	0.50	10.70	
	O & M					-	
	Capital					-	
						10.70	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.36	0.01	0.37	
Total Dollars				10.20	0.50	10.70	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
3011-85 Red River Automonitor Data Review

SUBMITTER - 0003 Canada/US and
ECS PROGRAM - 1.1 - Interjurisdictional Water Management
DURATION - 1984/85

OBJECTIVES

To prepare a draft report on the historical automonitor data collectd from the Red River at Emerson Manitoba.

RATIONALE

Under International Joint Commission (IJC) directives, the Water Quality Branch operates a continuous water quality monitor on the Red River at Emerson. Along with the continuous monitor data, monthly samples are collected. After 14 years, a large data base is available and the assessment of these data is a priority of the Branch.

DESCRIPTION

Since 1971, the Branch has operated a continuous monitor at Emerson, Manitoba. Parameters measured are: DO, pH, conductivity, chlorides and temperature. With very few exceptions, the monitor has operated on a continuous basis; acquiring more than 95% of the intended data base. This data base is not only useful in evaluating IJC objectives but is valuable in assessing the water quality of the Red River during this period. Therefore, an assessment of the data will be carried out and a draft report prepared by March 31, 1986.

COORDINATOR(S) - V. Chacko

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.22		0.22	PY TOTAL
	PY Tech					-	
	Salary			9.00		9.00	
	O & M			4.00		4.00	
	Capital					-	
						13.00	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.22		0.22	
Total Dollars				13.00		13.00	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
301-85 Interjurisdictional Monitoring by WRB

SUBMITTER - 0001
ECS PROGRAM - 1.3* - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES

To conduct monthly or time of visit water quality surveys at designated interjurisdictional locations; to prepare the data collected from these sites for the detailed data and water quality interpretive reports.

RATIONALE

This project contributes to the administration of the Boundary Waters Treaty of 1909 by making available, water quality data obtained at three border locations on remote interjurisdictional river systems. As well, samples are collected at major remote interprovincial rivers.

DESCRIPTION

Monthly or time of visit samples are collected for a wide spectrum of parameters. The governments concerned are notified of potential and real problems. Depending on the magnitude of the problem, External Affairs may be notified. The data are reviewed on an annual basis to assess the relative quality of the boundary streams.

COORDINATOR(S) - Block (Alta.) Chacko (Man.) Crosley (Sask.)

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals
A Base	PY Prof		0.01	0.04	0.01	
	PY Tech	0.11	0.07	0.07		0.20 PY TOTAL
	Salary	2.19	2.26	3.80	0.40	6.46
	O & M	1.49	1.30	3.90	0.50	5.7
	Capital	0.70	0.61	3.70		4.31
						16.47 TOTAL $
Recov.	PY Prof					
	PY Tech					
	Salary					
	O & M					
	Capital					
PY Total		0.11	0.08	0.11	0.01	0.2
Total Dollars		4.38	4.17	11.40	0.90	16.47

* Affiliated ECS Program(s) - 1.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
301-85 Interjurisdictional Monitoring by WRB

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
52	Battle Creek near International Boundary	00SA11AB0005	M	ALK_P ALK_P_R
53	Frenchman River at the 49th Parallel	00SA11AC0002	M	ALK_T ALK_T_R
54	Lodge Creek near Willow Creek	00SA11AB0007	M	AS_D_L B_D_L
59	Nelson River near mouth of Weier River	00MA05UH0001	V	CA CL
60	Hayes River below Junction with God's River	00MA04AB0001	V	CN COLI_F_F
61	Churchill River above Red Head Rapids	00MA06FD0002	V	COLI_T_F COLO_TR_R
62	Cochrane River near Brochet Manitoba	00MA06DA0001	V	COND_F COND_L_R C_DO_L C_PO F FE_E HERB K MET_T MG MN_E NA NO23_L N_D_L N_P O2_D OC/PCB PHENOL PH_F PH_L_R P_D_L P_T RES_NF SE_D_L SIO2 SO4 TEMP_F TEMP_L_R TURB_L_R

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
304-85 Interjurisdictional Monitoring by WQB

SUBMITTER - 0003
ECS PROGRAM - 1.3* - Water Quality Management Data
DURATION - Ongoing since 1978

OBJECTIVES

To report on the water quality at the interjurisdicational stations and to provide data for the administration of the Boundary Waters Treaty and Federal/Provincial Water Management programs.

RATIONALE

The Water Quality Branch contributes to the administration of the Boundary Waters Treaty of 1909 by making available water quality data obtained at border locations of international river systems.

DESCRIPTION

Samples are collected monthly for a wide variety of parameters from 23 interjurisdictional stations. The data are verified before dissemination. Unusual values are followed up with re-surveys. The governments concerned are notified of potential and real problems. Depending on the magnitude of the international concerns, External Affairs may be notified. The data are reviewed collectively, and by station, on an annual basis for publication. Instrument evaluation and field method development are also carried out.

COORDINATOR(S) - Block (Alta & NWT), Chacko (Man), Crosley (Sask)

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals
A Base	PY Prof		0.06	0.67		-
	PY Tech	1.18	0.64	1.26		2.63 PY TOTAL
	Salary	23.68	20.38	67.10		87.48
	O & M	16.11	12.43	24.00		36.43
	Capital	7.58	5.85	7.00		12.85
						136.76
Recov.	PY Prof					
	PY Tech					
	Salary					
	O & M					
	Capital					
PY Total		1.18	0.70	1.93		2.63
Total Dollars		47.37	38.66	98.10		136.76

* Affiliated ECS Program(s) - 1.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
304-85 Interjurisdictional Monitoring by WQB

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
1	Milk River at Eastern Crossing of International Boundary	00AL11AA0003	M	ALK_P ALK_P_R
2	Milk River at Western Crossing of International Boundary	00AL11AA0002	M	ALK_T ALK_T_R
3	North Milk River at International Boundary	00AL11AA0001	M	AL_D AL_E
4	St. Mary's River near International Boundary	00AL05AE0001	M	AS_D_D AS_D_L
5	Belly River at Highway # 6	00AL05AD0060	M	B_D_D B_D_L
6	Waterton River at Highway # 6	00AL05AD0005	M	CA CHL_A_D
7	East Poplar River at International Boundary	00SA11AE0008	M	CL CN
8	Long Creek South of Torquay	00SA05NA0002	M	COLI_F_F COLI_T_F
9	Long Creek near Noonan	00US05NB0001	M	COLO_TR_R COND_F
10	Souris River near Glen Ewen	00SA05ND0001	M	COND_L_R CR_T
11	Antler Creek at Highway # 251	00MA05NF0009	M	C_DO_L C_PO
12	Souris River at Coulter	00MA05NF0001	M	F FE_D_D
13	Badger Creek near Cartwright	00MA050A0003	M	FE_E HERB
14	Pembina River at Windygate	00MA050B0001	M	HG_T K
15	Roseau River at Gardenton	00MA050D0001	M	MET_T MG
17	Pine Creek Diversion at Highway # 89	00MA050D0012	M	MN_D_D MN_E
18	Gainsborough Creek at Hwy 83	00MA05NF0005	M	NA NH3_T
19	Pipestone Creek at Highway 255	00MA05NG0013	M	NO23_D NO23_L
20	Winnipeg River at Pointe du Bois	00MA05PF0022	M	N_D_D N_D_L
21	Manigotagan River at Highway 304	00MA05RA0004	M	N_P O2_D
56	Swan River at Highway # 10	00MA05LE0002	M	OC/PCB PHENOL
57	Woody River at Highway # 10	00MA05LE0003	M	PH_F PH_L_R
58	Overflowing River at Highway # 10	00MA05LD0001	M	P_D_D P_D_L P_T RES_NF SE_D_D SE_D_L

SIO2
SO4
TEMP_F
TEMP_L_R
TURB_F
TURB_L_R

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
305-85 Benchmark Basins Monitoring by WQB

SUBMITTER - 0003
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing since April 1980

OBJECTIVES

To conduct water quality surveys of Brewster Creek; to prepare the data for inclusion in detailed and interpretive reports.

RATIONALE

At the request of the Regional Director of IWD, sampling has been carried out to characterize the quality of benchmark streams.

DESCRIPTION

This project was discontinued during FY 83/84 in an effort to reduce the analytical requirements of the Branch during the relocation of its laboratory

The water quality parameters monitored are: major ions, bacteriological parameters, nutrients, physical tests and chlorophyll "A". The data are verified for inclusion in data reports.

COORDINATOR(S) - Block

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	TOTALS	
A Base	PY Prof			0.03		-	
	PY Tech	0.01	0.03	0.08		0.14	PY TOTAL
	Salary	0.19	0.75	3.75		4.50	
	O & M	0.13	0.51	1.92		2,43	
	Capital	0.06	0.24	0.98		1.22	
						8.15	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total		0.01	0.03	0.11		0.14	
Total Dollars		0.38	1.50	6.65		8.15	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
305-85 Benchmark Basins Monitoring by WQB

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
89	Brewster Creek near mouth	00AL05BB0009	M	ALK_P
				ALK_P_R
				ALK_T
				ALK_T_R
				AS_D_D
				B_D_D
				CA
				CHL_A_D
				CL
				COLI_F_F
				COLI_T_F
				COLO_TR_R
				COND_F
				COND_L_R
				C_DO_D
				C_PO
				F
				FE_D_D
				HG_T
				K
				MG
				MN_D_D
				NA
				NH3_T
				NO23_D
				N_D_D
				N_D_L
				N_P
				O2_D
				PH_F
				PH_L_R
				P_D_D
				P_T
				RES_NF
				SE_D_D
				SIO2
				SO4
				TEMP_F
				TEMP_L_R
				TURB_F
				TURB_L_R

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
310-85 Canada - Alberta Monitoring Agreement by WQB

SUBMITTER - 0479
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Negotiated Annually

OBJECTIVES

To conduct monthly water quality surveys at selected sites identified under the Agreement; to prepare the data for: monthly reports to Alberta DOE; the Regional ambient water quality data reports, and; the annual report on the quality of the aquatic environment (see Project 304).

RATIONALE

The Branch is in the process of negotiating a formal agreement with Alberta Environment to monitor the quality of surface water at twelve locations on a monthly bases during FY 84/85. The Branch anticipates that by May 1985, the Ad-Hoc Agreement will be replaced with a formal federal-provincial water quality Agreement. Discussions regarding the details of this formal Agreement are taking place.

DESCRIPTION

Since 1977 the Branch has annually negotiated an ad-hoc agreement with Alberta Environment. Under the terms of the Ad-Hoc Agreement samples are collected monthly by the Branch and WRB and are analyzed by the Branch. The data are verified and reported to Alberta Environment. The data also support the objectives of the Aquatic Quality Measurement and Assessment Subprogram. Because of federal interest at some sites, the program is cost shared by the two governments.

COORDINATOR(S) - Block

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof		0.04	0.06		-	
	PY Tech	0.09	0.06	0.16		0.32	PY TOTAL
	Salary	1.72	3.09	7.48		10.57	
	O & M	1.17	1.15	4.11		5.26	
	Capital	3.31	3.24	2.09		5.33	
						21.16	TOTAL $
Recov.	PY Prof			0.32			
	PY Tech	0.43	0.29	0.76		1.37	PY TOTAL
	Salary	8.61	8.43	34.96		43.39	
	O & M	5.85	5.73	19.18		24.91	
	Capital			9.75		9.75	
						78.05	TOTAL $
PY Total		0.52	0.39	1.30		1.69	
Total Dollars		20.66	21.64	77.57		99.21	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
310-85 Canada - Alberta Monitoring Agreement by WQB

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
33	Oldman River at Highway # 36 Bridge	00AL05AG0001	M	AG_E
34	Oldman River near Lethbridge	00AL05AD0002	M	ALK_P
35	Bow River near the mouth	00AL05BN0001	M	ALK_P_R
36	Bow River at Cochrane	00AL05BH0017	M	ALK_T
37	Red Deer River at Drumheller	00AL05CE0001	M	ALK_T_R
38	Red Deer River above Red Deer	00AL05CC0004	M	AS_D_D
39	North Saskatchewan River at Devon	00AL05DF0008	M	AS_D_L
40	North Saskatchewan River at Pakan Bridge	00AL05EC0005	M	B_D_D
41	Athabasca River at Athabasca	00AL07BE0001	M	B_D_L
42	Smoky River at Watino	00AL07GJ0001	M	CA
43	Peace River at Highway # 2, Dunvegan	00AL07FD0002	M	CHL_A_L
				CL
				COLI_F_F
				COLI_T_F
				COLO_TR_R
				COND_F
				COND_L_R
				C_DO_L
				C_PO
				F
				FE_D_D
				FE_E
				HERB
				HG_T
				K
				MET_T
				MG
				MN_D_D
				MN_E
				NA
				NH3_T
				NO23_D
				NO23_L
				N_D_D
				N_D_L
				N_P
				O2_D
				OC/PCB
				OP
				PHENOL
				PH_F
				PH_L_R
				P_D_D
				P_D_L
				P_T
				RES_MF
				SE_D_D
				SE_D_L
				SIO2
				SO4
				STREP_F_F
				TEMP_F
				TEMP_L_R
				TURB_F
				TURB_L_R

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
311-85 Canada - Alberta Monitoring Agreement by WRB

SUBMITTER - 0001
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Negotiated Annually

OBJECTIVES
See Project 310

RATIONALE
See Project 310

DESCRIPTION
Sampling at two sites under the Alberta-Canada Agreement is carried out by WRB. This project is integrally linked to project 310. For this reason, the resources of the two projects are presented together in the description for project 310. For further information see project 310.

COORDINATOR(S) - Block

RESOURCES
N/A

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
311-85 Canada - Alberta Monitoring Agreement by WRB

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency
42	Smoky River at Watino	00AL07GJ0001	M
43	Peace River at Highway # 2, Dunvegan	00AL07FD0002	M

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
312-85 Northern Saskatchewan Monitoring Agreement

SUBMITTER - 0001
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Negotiated Annually

OBJECTIVES

(1) To conduct quarterly water quality surveys at sites identified in the agreement. (2) To prepare quarterly data reports for the Saskatchewan Government.

RATIONALE

The Branch and Saskatchewan DOE both have need of ongoing water quality data for these interjurisdictional river systems. The Saskatchewan and Canadian governments, recognizing an opportunity to reduce monitoring costs in Northern Saskatchewan, have negotiated a cost-sharing agreement.

DESCRIPTION

Samples are collected quarterly from 5 river locations in N. Saskatchewan and analyzed by WQB. Radionuclide samples are collected at 2 of the sites, with analysis done by SRC. In addition, samples of lake water and snow are collected from 28 locations at various times of the year to provide information on LRTAP. Analyses of these samples are performed by SRC. Sites are accessible by air only. During 1985-86, collection will be done by WQB. The data are reviewed and reported quarterly.

COORDINATOR(S) - Crosley

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof		0.01	0.050			
	PY Tech	0.01	0.01	0.075		0.145	PY TOTAL
	Salary	0.15	0.57	4.400		4.97	
	O & M	0.10	0.15	16.000		16.15	
	Capital	0.31	0.46	1.000		1.46	
						22.58	TOTAL $
Recov.	PY Prof						
	PY Tech	0.04	0.04			0.04	PY TOTAL
	Salary	0.83	1.23			1.23	
	O & M	0.56	0.83			0.83	
	Capital					2.06	TOTAL $
PY Total		0.05	0.06	0.125		1.415	
Total Dollars		2.56	3.24	21.400		24.64	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
312-85 Northern Saskatchewan Monitoring Agreement

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
63	Douglas River below confluence with Cluff Creek	00SA07MA0001	Q	AG_E
64	Fond du Lac River below Black Lake	00SA07LC0001	Q	ALK_P
66	Geike River below junction with Wheeler River	00SA06DA0001	Q	ALK_P_R
67	Churchill River at Otter Rapids	00SA06CD0001	Q	ALK_T
68	Churchill River near Patuanak	00SA06BB0004	Q	ALK_T_R
S1	Beaver River above Beauval		Q	AS_D_L
				B_D_L
				CA
				CHL_A_L
				CL
				CN
				COLO_TR_R
				COND_F
				COND_L_R
				CR_T
				C_DI
				C_DO_L
				C_PO
				F
				FE_E
				HERB
				K
				MET_T
				MG
				MN_E
				MO_E
				NA
				NO23_L
				N_D_L
				N_P
				O2_D
				OC/PCB
				PHENOL
				PH_F
				PH_L_R
				P_D_L
				P_T
				RES_NF
				SE_D_L
				SIO2
				SO4
				TEMP_F
				TEMP_L_R
				TURB_L_R

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
313-85 Formalized Water Quality Agreement Development

SUBMITTER - N/A
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES

To negotiate and develop formalized agreements with the provinces of Manitoba, Saskatchewan and Alberta; to annually review and update these agreements.

RATIONALE

In 1982 Water Quality Branch was directed by the Federal Cabinet to negotiate water quality agreements with the provinces. These agreements will fullfill the needs of both the provinces (data aquisition for management purposes) and the federal government (National Water Quality Assessment).

DESCRIPTION

Negotiations with the province of Alberta commenced in 1983 with a view to replacing the existing ad hoc arrangement (Proects 310, 311) with a formalized agreement. This formalized agreement will contain provisions for the sharing of field and analytical work. As well, other joint activities such as quality control/quality assurance studies, interpretive reporting and sediment and biological surveys will take place. Similar agreements are scheduled to be negotiated with Manitoba (starting in 1984) and Saskatchewan.

COORDINATOR(S) - Gummer, Thomson

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	TOTALS	
A Base	PY Prof			1.0		-	
	PY Tech			0.1		1.1	PY TOTAL
	Salary			43.2		43.2	
	O & M			5.0		5.0	
	Capital			-		-	
						48.20	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				1.1		1.1	
Total Dollars				48.2		48.2	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
314-85 National Parks Monitoring Agreement

SUBMITTER - 0417
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Negotiated Annually

OBJECTIVES

To conduct monthly surveys at selected sites within the Rocky Mountain National Parks; to prepare detailed data reports on data obtained in 1982 and 1983; to develop an Agreement with Parks Canada for FY 86/87; to prepare an interpretive statement on monitoring data collected during the period 1980 to 1983.

RATIONALE

Parks Canada requested that the Branch establish and maintain a water quality network for the purpose of establishing and maintaining a baseline of surface water quality to optimize the use of Park waters. In addition, the Branch has an interest in these data since both the North and South Saskatchewan and the Athabasca Rivers originate in the Parks.

DESCRIPTION

Under the terms of the Agreement the Branch is committed to monthly monitoring for major ions, nutrients, bacteria and metals at five sites (with some IWD interest) in the Rocky Mt. Parks. The project is reviewed annually in cooperation with Parks Canada and is renewable with or without modification. Data are verified on a monthly basis and reported annually to Parks Canada.

COORDINATOR(S) - Block

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof		0.01	0.029			
	PY Tech	0.14	0.09	0.200		0.329	PY TOTAL
	Salary	2.78	3.02	16.990		20.01	
	O & M	1.89	1.82	10.480		12.30	
	Capital	1.34	1.28	2.790		4.07	
						36.38	TOTAL $
Recov.	PY Prof			0.070			
	PY Tech	0.07	0.05	0.180		0.3	PY TOTAL
	Salary	1.39	1.33	8.080		9.41	
	O & M	0.95	0.91	4.430		5.34	
	Capital			2.250		-	
						15.75	TOTAL $
PY Total		0.21	0.15	0.479		0.629	
Total Dollars		8.35	8.36	45.020		53.38	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
314-85 National Parks Monitoring Agreement

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
44	Bow River at Highway # 1 above Lake Louise	00AL05BA0011	M	ALK_P
45	Bow River 4.5 Km. above Canmore	00AL05BE0013	M	ALK_P_R
46	North Saskatchewan River at Whirlpool Point	00AL05DA0001	M	ALK_T
47	Athabasca River at Athabasca Falls	00AL07AA0015	M	ALK_T_R
48	Athabasca River at Highway # 16 below Snaring River	00AL07AA0023	M	AS_D_D
				B_D_D
				CA
				CHL_A_D
				CL
				CN
				COLI_F_F
				COLI_T_F
				COLO_TR_R
				COND_F
				COND_L_R
				C_DO_L
				C_PO
				F
				FE_D_D
				HERB
				HG_T
				K
				MET_T
				MG
				MN_D_D
				NA
				NH3_T
				NO23_D
				N_D_D
				N_D_L
				N_P
				O2_D
				OC/PCB
				PHENOL
				PH_F
				PH_L_R
				PIC
				P_D_D
				P_T
				RES_NF
				SE_D_D
				SIO2
				SO4
				STREP_F_F
				TEMP_F
				TEMP_L_R
				TURB_F
				TURB_L_R

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
321-85 Analytical Support - Saskatchewan Environment

SUBMITTER - 0428
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Negotiated Annually

OBJECTIVES

To provide analytical support on a full cost recovery basis to Saskatchewan Department of Environment in their program for monitoring and studying toxic substances.

RATIONALE

The WQB (federal government) is committed to federal- provincial cooperation in water resources management programs.

DESCRIPTION

The Branch has a long history of supporting the work of the Government of Saskatchewan. The withdrawal of the Branch from interprovincial monitoring has left a gap which Saskatchewan has attempted to fill. Saskatchewan has limited capability for analyzing for toxic substances, particularly organics. Because of the precedence and because of the federal interest in toxic substances, the Branch has agreed to support the toxic substances program of Saskatchewan by carrying out analysis on a full cost recovery basis. Costs are recovered in accordance with the National Laboratory Cost Schedule and are estimated to be about $15,000 in FY 84/85. An agreement with complete details is on file.

COORDINATOR(S) - J. Gaskin

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals
A Base	PY Prof	0.01	0.01			0.01 PY TOTAL
	PY Tech	0.05				-
	Salary	1.35	0.35			0.35 TOTAL $
	O & M					
	Capital					
Recov.	PY Prof					
	PY Tech					
	Salary					
	O & M	15.00				15.00
	Capital					
PY Total		0.06	0.01			0.01
Total Dollars		16.35	0.35			15.35

322-85 Analytical Support - Miscellaneous

SUBMITTER - 0459
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES

To provide field and analytical support to pollution surveys as the urgency may require.

RATIONALE

Not all analytical requirements are known in advance. Sampling is sometimes initiated following spills and other pollution events which require laboratory support.

DESCRIPTION

When sampling of pollution events occurs or when unplanned sampling in support of other budgeted projects is conducted, e.g. follow-up pollution verification surveys, the laboratory is contacted regarding its perceived involvement. Work load, sample type, parameter selection, sample turnaround time and reporting requirements are determined in advance of the sample analysis.

COORDINATOR(S) - J. Gaskin

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals
A Base	PY Prof		0.01	0.01		-
	PY Tech			0.02		0.04 PY TOTAL
	Salary		0.35	0.90		1.25
	O & M		1.20	1.10		2.30
	Capital					3.55 TOTAL $
Recov.	PY Prof					
	PY Tech					
	Salary					
	O & M					
	Capital					
PY Total			0.01	0.03		0.04
Total Dollars			1.55	2.00		3.55

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
323-85 Analytical Support - Other Federal Agencies

SUBMITTER - 0459
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES
To provide field and analytical support to ongoing programs and pollution surveys by other federal agencies as may be required.

RATIONALE
Not all analytical requirments are known in advance. Sampling is sometimes initiated following spills and other pollution events which may require laboratory support. It is Branch policy to provide analytical support to federal agencies but within the restraints of staff and dollars. When necessary, O&M costs and salary are recovered.

DESCRIPTION
When sampling of pollution events occurs or when unplanned sampling by other federal agencies is conducted (e.g. follow-up pollution verification surveys) the laboratory may be asked to provide analytical support. Work load, sample type, parameter selection, sample turnaround time and reporting requirements are determined in advance of the sample analysis. Support is also provided to ongoing activities of the federal agencies (CWS, NHRI, NWRI) to assist them in meeting their analytical needs. There is more information regarding support for CWS and NWRI on file.

COORDINATOR(S) - J. Gaskin

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.01		0.01	PY TOTAL
	PY Tech					-	
	Salary			0.35		0.35	
	O & M			12.20		12.20	
	Capital						
						12.55	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total		0		0.01		0.01	
Total Dollars		0		12.55		12.55	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
330-85 Regional Quality Control Assurance Program

SUBMITTER - 0003
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing since 1984

OBJECTIVES

To continue to evaluate programs, activities and methods in a systematic fashion to enhance the quality of the information provided by the WQB.

RATIONALE

In order to fulfill its mandate, the Branch is committed to producing the best possible data and to fully understanding the limits of this data.

DESCRIPTION

In order to meet their commitment to quality control, the Branch operates several projects. These quality control projects focus on both the field and laboratory stages of data production and are outlined for specific activities in subsequent projects. The Branch, however, recognizes the need for continued dialogue within as well as with experts from outside the Branch and the synthesis of this information in the development of a regional quality assurance program. The quality assurance program is perceived to be evolutionary with the goal in FY 85/86 being to outline the essential elements of a regional quality assurance plan and implement or modify specific aspects of its monitoring and special study activities identified as requiring immediate attention. Emphasis initially will be on inorganic parameters and nutrients followed in subsequent years by toxic organic substances.

COORDINATOR(S) - Gaskin

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.1			
	PY Tech			0.1		0.2	PY TOTAL
	Salary			7.5		7.5	
	O & M			2.0		2.0	
	Capital					9.5	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.2		0.2	
Total Dollars				9.5		9.5	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
331-85 Field Quality Control

SUBMITTER - 0446
ECS PROGRAM - 1.3* - Water Quality Management Data
DURATION - Ongoing since 1980

OBJECTIVES

(1) Ascribe a degree of precision to the existing sampling method for specific parameters. (2) Establish criteria on which to review the project design. (3) Periodically review the project design. (4) Prepare interpretive reports on an as required basis.

RATIONALE

Knowledge of sampling precision is invaluable to data interpretation. In order that the field quality control project be carried out in the most effective manner possible, a routine procedure for the analysis of data and review of the project design in required.

DESCRIPTION

This project is intended to help ensure consistency in field practices and to quantify the precision of sampling practices. In order to carry this out, replicate samples are collected and analyzed. The results are used to determine analytical variability, calibrate instruments and ensure overall quality control.

COORDINATOR(S) - J. Gaskin

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof		0.01	0.14		-	
	PY Tech		0.23	0.03		0.41	PY TOTAL
	Salary		6.18	4.40		10.58	
	O & M		8.90			8.90	
	Capital					-	
						19.48	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M	9.65					
	Capital						
PY Total			0.24	0.17		0.41	
Total Dollars		9.65	15.08	4.40		19.48	

* Affiliated ECS Program(s) - 1.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
332-85 Miscellaneous Field Quality Control

SUBMITTER - 0447
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES

Project allows coding of data not intended to be entered on NAQUADAT.

RATIONALE

Some data generated in certain projects is not wanted on NAQUADAT. As a result, a special project number is required to allow coding for in-house data analysis and to make NAQUADAT entry more streamlined.

DESCRIPTION

This is an "umbrella" project intended to allow coding of miscellaneous samples from various projects, which are not to be stored on NAQUADAT (i.e. distilled water blanks, sample to assess field filtering methods, etc.). Annual reports to file based on the results from the filter blank and rinse water blank samples are required from each of the Resource Officers for samples generated in their programs.

COORDINATOR(S) - J. Gaskin

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof						
	PY Tech		0.02			0.02	PY TOTAL
	Salary	0.05	0.67			0.67	
	O & M	0.04	0.46			0.46	
	Capital	0.02	0.21			0.21	
						1.34	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total			0.02			0.02	
Total Dollars		0.11	1.34			1.34	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
333-85 Inter-Regional Quality Control

SUBMITTER - 0444
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES
To ensure the quality and compatibility of laboratory data by participating in the national round-robin quality control program.

RATIONALE
Quality assurance or quality control ensures that the integrity of the data generated at the laboratory is maintained at a high level of excellence.

DESCRIPTION
The National Coordinator selects parameters for investigation and submits appropriate samples to participating laboratories of which the Saskatoon Branch Laboratory is one. A high priority is given to analyzing these samples.

The accuracy and precision of the data generated by the Saskatoon Laboratory is compared by the project coordinator to the known values and to the results from other laboratories. If the examination shows it to be necessary, methodology is changed to improve the quality of the generated data.

COORDINATOR(S) - Gaskin

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof		0.01			-	
	PY Tech		0.06			0.07	PY TOTAL
	Salary		1.91			1.91	
	O & M		0.82			0.82	
	Capital					-	
						2.73	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total			0.07			0.07	
Total Dollars			2.73			2.73	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
334-85 Intra-Laboratory Quality Control

SUBMITTER - 0448
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES

To ensure the quality and compatibility of laboratory data by checking analytical performance of the Inorganic Laboratory through the use of spike, duplicates, blind unknowns, blanks, related parameter correlations and cation-anion balance checks.

RATIONALE

Quality assurance and quality control ensure that the quality and integrity of the data generated at the laboratory is maintained at a high level of excellence.

DESCRIPTION

The Head of the Inorganic Laboratory selects parameters for investigation as the need arises by introducing blind samples whose constituent concentrations are unknown to the analysts. The obtained values are compared with expected results.

On an ongoing basis, all analysts are instructed to duplicate (within practicality) every tenth sample and spike (within practicality) every twentieth sample. The data examined and, if necessary, corrective action taken.

All analysts are required to prepare standards, blanks and rinses to be included with determinations where applicable. The results of each run are calculated and checked for inconsistencies.

COORDINATOR(S) - Gaskin

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof		0.02			-	
	PY Tech		0.21			0.23	PY TOTAL
	Salary		8.85			8.85	
	O & M		0.90			0.90	
	Capital					-	
						9.75	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total			0.23			0.23	
Total Dollars			9.75			9.75	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
350-85 Surveys and Interpretation Division Strategic Plan

SUBMITTER - N/A
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES

To identify S & ID's priorities and direction in the context of the Water Quality Branch program and to maintain this strategy on an ongoing basis.

RATIONALE

S & ID consists of a group of disparate technical and professional experts whose responsibilities are divided between providing advice and support to other Branch staff as well as undertaking specialized and multi-disciplinary studies and surveys and providing a liaison with research components of IWD. In order for the Division to fulfill this role effectively it is necessary to identify its working relationships within the Branch and develop a strategy for achieving its goals.

DESCRIPTION

A plan will be prepared for the Division which will identify its priorities, its working relationships within the Branch and develop a strategy for achieving its goals. The Regional EDP Plan, Regional Groundwater Plan, Regional Biomonitoring Plan and other more specific operational plans will identify specific implementation activities of the Division. It will be essential to update this strategic Plan and the operational plans annually.

COORDINATOR(S) - D. Gregor

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.05		0.05	PY TOTAL
	PY Tech						
	Salary			2.25		2.25	
	O & M					-	
	Capital					-	
						2.25	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.05		0.05	
Total Dollars				2.25		2.25	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
351-85 Intensive Nutrient Monitoring of Lake Diefenbaker

SUBMITTER - 0007
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Since 1984

OBJECTIVES
To quantify macro-nutrient loadings to and from Lake Diefenbaker.

RATIONALE
It is important to quantify nutrient loadings into anf out of Lake Diefenbaker in order to assess trophic state and the need for remedial measures. Current monthly sampling upstream is inadequate for this purpose as is in-lake sampling. Therefore intensive weekly monitoring has been undertaken such that input-output loadings can be determined.

DESCRIPTION
A weekly sample is collected by a lay collector at Leasford Ferry and shipped directly to the regional lab in Saskatoon. This site is also sampled as part of project 376 and thus cross-sectional information and quality control information is available. Output is sampled at Gardner Dam by SPC personnel on a weekly basis. Quality control samples are also collected here. Weekly sampling is likely adequate although more frequent sampling may be required during high flow periods. Sampling commenced in October 1984 and should continue for at least three years.

COORDINATOR(S) - Gregor

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.02		-	
	PY Tech			0.03		0.05	PY TOTAL
	Salary			1.80		1.80	
	O & M			2.00		2.00	
	Capital					-	
						3.80	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.05		0.05	
Total Dollars				3.80		3.80	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
385-85 Interjurisdictional Ground Water Quality

SUBMITTER - N/A
ECS PROGRAM - 1.3* - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES

Revise and implement the regional ground water quality strategy in accordance with the new IWD policies on ground water.

RATIONALE

Many large aquifers in Western and Northern Region are transboundary in nature. Hence, developments in one jurisdiction can affect groundwater quality in another, potentially affecting water use. This is a major issue in historically water short areas, such as those near the International Border across the breadth of the Western and Northern Region. In addition, heavy oil and tarsand development is becoming an important factor in interjurisdictional aquifer protection in areas of Alberta and Saskatchewan affected by in situ recovery.

DESCRIPTION

During 1982/83, a groundwater strategy paper was prepared in W&NR. This paper gave rise to a number of exchanges between Headquarters and the Region during 1983/84. As of March 1985, no formal agreement has been reached as to what a groundwater strategy for IWD should entail. It is foreseen, however, that in 1985/86 and in ensuing years closer ties will be maintained with NHRI and EPS. Contacts will also be maintained other federal, provincial and international agencies having an interest in regional groundwater resources. In FY 1985/86, a greater emphasis will be placed on developing the groundwater component of the NWT strategy.

COORDINATOR(S) - D. McNaughton

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.1	0.2	-	
	PY Tech			0.1		0.4	PY TOTAL
	Salary			6.5	8.0	14.5	
	O & M			3.5		3.5	
	Capital					-	
						18.00	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.2	0.2	0.4	
Total Dollars				10.0	8.0	18.0	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
368-85 Agricultural Effects On Groundwater Quality

SUBMITTER - N/A
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - May 1985 to May 1986

OBJECTIVES

This study will shed light upon the overall effects of animal wastes on the quality of ground water in the Western and Northern Region.

RATIONALE

The contamination of ground waters by the infiltration of animal wastes has a potentially-widespread impact on the important ground water supplies of the region. There are interjurisdictional implications, both from the direct movement of ground water across provincial boundaries, and in the contribution of potentially-contaminated waters from the ground water zone into interjurisdictional surface water bodies (See Project 365).

DESCRIPTION

The project will consist of a data search on the subject. An assessment will be made on the magnitude of the problem, if any is seen to exist. Recommendations will be made accordingly.

COORDINATOR(S) - D. McNaughton

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	TOTALS	
A Base	PY Prof			0.3	0.1	-	
	PY Tech			0.1		0.5	PY TOTAL
	Salary			14.5	4.0	18.5	
	O & M					0.0	
	Capital					-	
						18.5	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.4	0.1	0.5	
Total Dollars				14.5	4.0	18.5	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
3007-85 Qu'Appelle Nutrient Loading Study

SUBMITTER - 0138
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - April 1980 to June 1984

OBJECTIVES

To determine if management strategies to abate pollution in the Qu'Appelle River Basin correspond with a quantifiable reduction in nutrient loading to and from the Fishing Lakes.

RATIONALE

As part of the Qu'Appelle Implementation Agreement considerable money and effort have been spent to reduce the phosphorus load to the Qu'Appelle Lakes, in the hopes reducing the rate of eutrophication. Unfortunately, no provisions were made to evaluate changes in water quality. Subsequently, the WQB, under agreement to the Board, agreed to study trends in nutrient loading to and from the Fishing Lakes.

DESCRIPTION

Water samples for nutrient analsis were collected at the hydrometric station above and below the Fishing Lakes from April, 1980 to June 1983. Using these results and the WRB flow data, loading into and out of the lakes will be calculated and trends and characteristics assessed. Historical nutrient data from various sources will also be gather to assess the change in nutrient quality of the Qu'Appelle River as a result of nutrient management practices. During 1984/85 the final report will be completed.

COORDINATOR(S) - Munro

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	TOTALS	
A Base	PY Prof			0.16		0.16	PY TOTAL
	PY Tech					-	
	Salary			5.80		5.80	
	O & M			0.50		0.50	
	Capital					-	
						6.30	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.16		0.16	
Total Dollars				6.30		6.30	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
3008-85 Qu'Appelle River Periphyton Productivity Study

SUBMITTER - 0482
ECS PROGRAM - 1.3* - Water Quality Management Data
DURATION - To September 1985

OBJECTIVES

To investigate periphyton productivity in the Qu'Appelle River to assess the nutrient quality of the river and to evaluate the use of periphyton as a biomonitoring within the region.

RATIONALE

As part of the Regional Biomonitoring Program, regional assessment of biomonitoring methods is required. This project assesses the use of periphyton productivity biomonitoring and gives information about the nutrient quality of the Qu'Appelle River.

DESCRIPTION

Two stations were established on the Qu'Appelle River, above and below the Fishing Lakes. Periphyton were collected during 1980 and 1981 using artificial substrates. Samples were collected 1, 2, and 3 weeks after the substrates were placed in the river to provide a measurement of the rate of productivity of a well-established mat of periphyton. Samples were analyzed for chlorophyll - a, and ash free weight. A report will be completed during 1985/86.

COORDINATOR(S) - D. Munro

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.11		0.11	PY TOTAL
	PY Tech					-	
	Salary			3.80		3.80	
	O & M			0.50		0.50	
	Capital					-	
						4.30	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.11		0.11	
Total Dollars				4.30		4.30	

* Affiliated ECS Program(s) - 1.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
3009-85 Assessment of Bioaccumulation of Metals

SUBMITTER - N/A
ECS PROGRAM - 1.3* - Water Quality Management Data
DURATION - To July 1985

OBJECTIVES

To examine the use of clam and sport fish population as a tool for assessing the presence of metals in the aquatic environment.

RATIONALE

As part of the Regional Biological Monitoring Program some regional assessment of biomonitoring methods are required. This project is to assess the use of clams and fish as indicators of contaminants and their possible use as a biomonitoring tool. In addition, the study gives information on the presence of contaminants in the Qu'Appelle and Montreal Rivers.

DESCRIPTION

During the summer of 1978, selected tissues of clams and of four fish species were monitored for the bioaccumulation of PCB's, chlorinated hydrocarbons (insecticide group), Hg, Se, As,Cd, Cu and Pb. The results for organic compounds were presented at the PAR Conference in 1981. Based on the results of the metal analysis, two draft reports were initiated but never completed. These metal reports will be redrafted to produce a final report.

COORDINATOR(S) - D. Munro

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.12		0.12	PY TOTAL
	PY Tech					-	
	Salary			4.20		4.20	
	O & M			0.50		0.50	
	Capital					-	
						4.70	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.12		0.12	
Total Dollars				4.70		4.70	

* Affiliated ECS Program(s) - 4.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
3010-85 Evaluation of Sampling Methods

SUBMITTER - 0494
ECS PROGRAM - 1.3* - Water Quality Management Data
DURATION - April 1980 to March 1986

OBJECTIVES

To compare the results obtained using present Branch sampling techniques to those obtained using the equal discharge increment method.

RATIONALE

Metals, nutrients and organics are important in Branch programs and may be influenced by the presence of suspended sediment. Since the present sampling techniques were not designed to collect representative suspended sediment samples, the technique needs to be evaluated.

DESCRIPTION

An accepted procedure for collecting suspended sediment is the equal discharge increment (EDI) method. For this study, the EDI method will be compared to present Branch methods. The field work for the study was carried out in FY 80/81. During 84/85 the interpretation of the data was undertaken and a draft of the report was completed. During 85/86 the final report will be completed and a paper will be presented at a workshop on interpretation methods.

COORDINATOR(S) - Block, Gregor

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	TOTALS	
A Base	PY Prof			0.09		-	
	PY Tech			0.05		0.14	PY TOTAL
	Salary			5.00		5.00	
	O & M			2.00		2.00	
	Capital					-	
						7.00	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.14		0.14	
Total Dollars				7.00		7.00	

* Affiliated ECS Program(s) - 1.1, 4.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
3014-85 Development of a Biological Data Storage System

SUBMITTER - N/A
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - April 1985 to March 1986

OBJECTIVES

To develop a computerized data storage system and procedure for storing data generated from biological studies conducted by the Water Quality Branch in the Region.

RATIONALE

The Water Quality Branch in the Western and Northern Region believes that all the data generated in the Region should be electronically stored. With the increasing emphasis being placed on biological monitoring in the Region, an increasing volume of biological data is being generated. This data does not lend itself to computerized storage by the methods presently in use for storage of water chemistry data, therefore a storage procedure for biological data must be developed.

DESCRIPTION

There are three steps in the development of the facility to store biological information. The first is the preparation of a parameter code dictionary. The second is the development of a data entry procedure since existing software is inadequate. The final step is documenting the facility for use.

COORDINATOR(S) - Dave Munro and 'Vacant EDP Person'

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.08		0.08	PY TOTAL
	PY Tech					-	
	Salary			3.00		3.00	
	O & M			0.20		0.20	
	Capital					-	
						3.20	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.08		0.08	
Total Dollars				3.20		3.20	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
3015-85 Water Quality Data Reports

SUBMITTER - 0003
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing

OBJECTIVES

To publish detailed water quality data reports for Alberta, Saskatchewan, Manitoba and the Northwest Territories.

RATIONALE

Data from the Branch monitoring measurement and assessment programs should be made readily available to data users, including the public, the scientific community and other government agencies.

DESCRIPTION

Data from monitoring, measurement and assessment programs are verified and stored on NAQUADAT. These data are published on a semi-annual basis in provincial and territorial data reports.

COORDINATOR(S) - Block (Alta & NWT), Crosley (Sask), Chacko (Man)

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.20		-	
	PY Tech			0.14		0.34	PY TOTAL
	Salary			12.60		12.60	
	O & M			12.00		12.00	
	Capital					-	
						24.60	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.34		0.34	
Total Dollars				24.60		24.60	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
3098-85 Electronic Data Processing Coordination

SUBMITTER - 0501
ECS PROGRAM - 1.3* - Water Quality Management Data
DURATION - Ongoing since 1980

OBJECTIVES

To coordinate EDP activities within the Branch to ensure the orderly implementation and operation of EDP facilities.

RATIONALE

The Western and Northern Region Water Quality Branch is expanding its use of electronic data processing to enhance its data management and interpretation capabilities. In order to coordinate these activities, and attempt to see that the Branch EDP resources are used effectively, this project has been established as an umbrella.

DESCRIPTION

This project covers those electronic data processing (EDP) activities which are not project specific. The operation, maintenance, development and management of the Branch's EDP resources are overhead activities in that they benefit all projects which use EDP resources. The recoverable PY's shown in the Resources table cover summer student and Environment 2000 support.

COORDINATOR(S) - D. McNaughton

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof				1.0	-	
	PY Tech				0.5	1.5	PY TOTAL
	Salary				49.0	49.0	
	O & M				40.0	40.0	
	Capital				43.3	43.3	
						132.30	TOTAL $
Recov.	PY Prof						
	PY Tech					0.0	
	Salary					0.0	
	O & M						
	Capital						
PY Total					1.5	1.5	
Total Dollars					132.3	132.3	

* Affiliated ECS Program(s) - 1.1, 4.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
307-85 National Radionuclide Monitoring

SUBMITTER - 0007
ECS PROGRAM - 4.1 - Toxic Chemicals
DURATION - Ongoing since 1980

OBJECTIVES

To measure and assess the significance of radionuclides in waters of federal interest.

RATIONALE

Radiation emitted by radionuclides is harmful to humans, causing damage at both the cellular and molecular levels. The main effect on the individual at low dose levels is the induction of cancer, such as leukemia, while very high dose levels result in death. In addition to somatic changes which affect the individual, genetic changes can also occur which affect the offspring for several generations.

DESCRIPTION

Because of limited field and laboratory resources, samples are composited to make an annual sample for analysis. Four (4) litre samples are collected monthly in polyethylene containers and acidified with 8 ml. concentrated HCL as a preservative. From the 12 monthly samples a composite five (5) litre sample is sent to NWRI annually for analysis.

Stations monitored under this project are included in other projects as follows: Souris River at Coulter and East Poplar River at International Boundary in Project 304, Baker Lake 1.6 km from Baker Lake in Project 390, Saskatchewan River above Carrot River in Project 315, and Red River at Emerson in Project 306.

COORDINATOR(S) - D. McNaughton

RESOURCES

N/A

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
360-85 Regional Biomonitoring Program

SUBMITTER - 0489
ECS PROGRAM - 4.1* - Toxic Chemicals
DURATION - Ongoing

OBJECTIVES
To develop and initiate a biological monitoring program to assist in assessing aquatic quality within the Western and Northern Region.

RATIONALE
An adequate assessment of aquatic quality is an integrated approach of the chemical, physical and biological sciences. The Branch has undertaken the development of a biological monitoring program to meet this need.

DESCRIPTION
A biological monitoring program is being developed through a search of the scientific literature, contacting and meeting experts in the field, reviewing present WQB biological activities and undertaking pilot studies. The plan will outline the techniques commonly used their application, the pros and cons and will recommend methods for use in this region. The plan will be multi-year in scope and will be reviewed annually.

COORDINATOR(S) - Munro

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.35		0.35	PY TOTAL
	PY Tech						
	Salary			14.25		14.25	
	O & M			5.50		5.50	
	Capital					-	
						19.75	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.35		0.35	
Total Dollars				19.75		19.75	

* Affiliated ECS Program(s) - 1.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
361-85 Forage Fish Assessment Program

SUBMITTER - 0489
ECS PROGRAM - 4.1* - Toxic Chemicals
DURATION - Ongoing - with annual rotation of sampling sites

OBJECTIVES

To collect forage fish samples at various monitoring locations throughout the Region to examine metal and organic compounds in their tissues. Prepare a report based on the results of the 1984/85 sampling program.

RATIONALE

In order to adequately assess the aquatic quality the Branch feels an integrated approach to monitoring is required which examines chemical, physical and biological sciences and multiple media analysis. This project is intented to expand on the media analyzed by the Branch to include biological organisms at selected sites.

DESCRIPTION

The WQB decided in September 1983 to initate a forage fish program to assess the bioaccumulation of pollutants in the aquatic environment. This program was conducted on a limited trail basis during 1984/85. In this Region forage fish were collected at ten sites during the summer of 1984 and analyzed for a number of metals and organic substances. A report will be prepared based on the results from these samples and sampling will be conducted at a number of other sites in 1985/86.

COORDINATOR(S) - Munro

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	TOTALS	
A Base	PY Prof			0.2		-	
	PY Tech	0.17		0.1		0.03	
	Salary	3.30		11.0		11.00	
	O & M	2.25		15.0		15.00	
	Capital	1.06				-	
						26.00	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total		0.17		0.3		0.3	
Total Dollars		6.61		26.0		26.00	

* Affiliated ECS Program(s) - 1.1, 4.1

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
361-85 Forage Fish Assessment Program

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
15	Red River at Emerson	00MA05OC0001	V	AS_T_B CD_T_B
27	Carrot River at Turnberry	00SA05KH0002	V	CR_T_B CU_T_B
29	Red Deer River near Erwood	00SA05LC0001	V	HG_T_B NI_T_B
30	Qu'Appelle River 3.2 Km. South of Welby	00SA05JM0014	V	OC/PCB_B SE_T_B
31	Assiniboine River at Highway # 8 below Kamsack	00SA05MD0002	V	ZN_T_B
32	Saskatchewan River above Carrot River	00MA05KH0001	V	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
370-85 Evaluation of Toxic Chemicals Program

SUBMITTER - N/A
ECS PROGRAM - 4.1 - Toxic Chemicals
DURATION - Ongoing

OBJECTIVES

To prepare a discussion paper which evaluates the present toxic chemicals program and its ability to identify and assess the distribution of toxic chemicals in waters of federal interest and make suggestions for possible change in the program.

RATIONALE

Toxic chemicals pervade every corner of the environment. Information on their presence, abundance, distribution, mobility and effects is essential towards understanding the risk they pose to man and the environment. The Branch has monitored for toxic chemicals in water for many years and it is generally felt that although this monitoring is useful that it could be improved. To that end a discussion paper is to be prepared.

DESCRIPTION

The Water Quality Branch has monitored for toxic chemicals in water for many years and the results of this monitoring show that toxic chemicals are not generally found and this has been accepted as an indication that toxic chemicals are not in the aquatic ecosystem. However, in recent years this has been questioned and its has been suggested that other forms of monitoring might show that presence of toxic chemicals. The Branch has conducted numerous pilot studies in recent years to try to assess the potential use of other monitoring techniques for assessing the presence of toxic chemicals in the aquatic ecosystem. During the 1985/86 fiscal year a discussion paper will be prepared which will further examine the present monitoring program and make suggestions for possible change.

COORDINATOR(S) - D. Munro, J. Gaskin, H. Vaughan

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof		0.1	0.3		0.4	PY TOTAL
	PY Tech					-	
	Salary		4.5	12.5		17.0	
	O & M		1.5	4.0		5.5	
	Capital					-	
						22.5	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total			0.1	0.3		0.4	
Total Dollars			6.0	16.5		22.5	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
371-85 Municipal Drinking Water Quality

SUBMITTER - 0007
ECS PROGRAM - 4.1 - Toxic Chemicals
DURATION - Ongoing

OBJECTIVES

In conjunction with National Health and Welfare (NH&W) assist provincial and municipal agencies in ensuring high quality, safe drinking water to the Canadian people.

RATIONALE

A growing concern over safe municipal drinking water exists in Canada. This concern was sparked and continues to be fueled by the increased concern over the presence of toxic substances and noxious tastes and odours in an increasing number of potable water supplies.

DESCRIPTION

The activities of this project are in their formative stage at this time. It is expected that joint evaluations of available data for sources of drinking water will be evaluated and reports prepared nationally. A specialized study of taste and odour problems at the Regina-Moosejaw water supply will be further studied in conjunction with the cities and NWRI. The resources for this project cannot be estimated at this time.

COORDINATOR(S) - Gummer

RESOURCES

N/A

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
374-85 Research Liaison and Technology Transfer

SUBMITTER - 0007
ECS PROGRAM - 4.1 - Toxic Chemicals
DURATION - Ongoing

OBJECTIVES

To enhance the activities and capabilities of the Branch and its personnel through liaison with IWD research agencies (NWRI and NHRI) as well as other agencies; and, to develop and/or adapt new technologies to the Branch measurement and assessment techniques.

RATIONALE

The science of environmental quality measurement and assessment is rapidly evolving. Liaison with other water quality experts and researchers is mandatory if the Branch is to keep pace with this evolution. This will be achieved through cooperative efforts between the Branch and research scientists and other personnel for the purpose of exchanging ideas, expertise and developing or adapting new technology.

DESCRIPTION

See also Projects 360,365,375,376 and 379. Other specific activities this year include: 1 ongoing meetings with NWRI staff in Burlington and Winnipeg regarding sampling and analysis of toxic substances; 2 joint undertakings with GLFRB, DF&O to determine bioassess metals and other toxic substances in selected sediment samples; 3 joint authorship of a paper on comparison of parametric and non-parametric statistics for interpretation of water quality data; 4 coordination with regional and national labs regarding data and methods; 5 field testing and evaluation of a field liquid/liquid organic extraction system developed jointly by WQB and NWRI.

COORDINATOR(S) - Gregor

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.05		-	
	PY Tech			0.05		0.10	PY TOTAL
	Salary			3.80		3.80	
	O & M			8.50		8.50	
	Capital					-	
						12.30	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.10		0.10	
Total Dollars				12.30		12.30	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
375-85 Specimen Banking

SUBMITTER - N/A
ECS PROGRAM - 4.1 - Toxic Chemicals
DURATION - Ongoing

OBJECTIVES

To establish and maintain a regional specimen bank for sediment, biological, and water samples. Establish procedures for collecting, treating, and storing sediments.

RATIONALE

The establishment of a speciment bank will allow for the timely collection of samples from various field program ,which can be stored for analysis at a latter date; thereby, reducing costs in the field and laboratory. In addition specimen banking could create a source of samples for possible retrospective analysis.

DESCRIPTION

Initially this project will consist of a review of available literature on the subject of sample storage including collection methods, splitting and preservation method and storage containers required for the various forseeable analysis. Also included in the initial stages of this project will be the establishment of a procedure for recording and cataloguing of samples placed in the specimen bank. During FY 85/86, special studies will be undertaken to contribute samples to the bank as well as to provide time of collection analyses.

COORDINATOR(S) - Munro, Gregor

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.12		-	
	PY Tech			0.22		0.34	PY TOTAL
	Salary			7.80		7.80	
	O & M			2.50		2.50	
	Capital					-	
						10.30	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.34		0.34	
Total Dollars				10.30		10.30	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
376-85 South Saskatchewan R. and L. Diefenbaker Study

SUBMITTER - 0003
ECS PROGRAM - 4.1 - Toxic Chemicals
DURATION - 1984/85 and 1985/86

OBJECTIVES

(1) To describe the temporal and spatial water chemistry characteristics of Lake Diefenbaker and the South Saskatchewan and Red Deer Rivers above and below their confluence. (2) To quantify the contaminant burden of the resident biota. (3) To synthesize this and other availablke information in a comprehensive report.

RATIONALE

Lake Diefenbaker is a high priority of the Province of Saskatchewan because of the need to protect the lake as a supply of drinking and irrigation water and as a recreational reservoir. Current priorities require that an extensive short duration study be undertaken in order to assist with pending management discussions. This study will also be used to determine the need for a longer intensive study or monitoring program and/or identify research needs within the basin.

DESCRIPTION

Due to the many facets of this study, a summarized description has not been provided. A study plan which also shows the work sharing program between WQB and SDOE is available from the project coordinator. For information regarding the timing of this project please refer to the detailed study plan.

COORDINATOR(S) - D. Gregor, R. Crosley

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	TOTALS	
A Base	PY Prof		0.03	0.6		-	
	PY Tech	0.63	0.29	0.2		1.75	PY TOTAL
	Salary	12.56	9.32	35.0		44.32	
	O & M	8.54	5.62	20.0		25.62	
	Capital	4.02	2.65	10.0		12.65	
						82.59	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M					0.00	
	Capital						
PY Total		0.63	0.32	0.8		1.75	
Total Dollars		25.12	17.59	65.0		82.59	

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
376-85 South Saskatchewan R. and L. Diefenbaker Study

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
22	South Saskatchewan River at Highway # 41	00AL05AK0001	V	ALK_P
				ALK_P_R
23	Red Deer River near Bindloss	00AL05CK0001	V	ALK_T
				ALK_T_R
S1	S. Sask. R. near Leader		V	AL_D
				AL_E
S2	S. Sask. R. near Lemsford		V	AS_D_D
				AS_T_B
				AS_T_S
				B_D_D
				CA
				CD_T_B
				CD_T_S
				CHL_A_D
				CL
				CN
				COLI_F_F
				COLI_T_F
				COLO_TR_R
				COND_F
				COND_L_R
				CR_E
				CR_T_B
				CR_T_S
				CU_T_B
				CU_T_S
				C_DO_D
				C_PO
				F
				FE_D_D
				HERB
				HG_T
				HG_T_B
				HG_T_S
				K
				MET_T
				MG
				MN_D_D
				NA
				NH3_T
				NI_T_B
				NI_T_S
				NO23_D
				N_D_D
				PHENOL
				N_D_L
				PH_F
				N_P
				PH_L_R
				O2_D
				P_D_D
				OC/PCB
				P_DR_D
				OC/PCB_B
				P_T
				OC/PCB_S

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
377-85 Investigation of the Hydrogeochemical Effects of Coal Mining

SUBMITTER - N/A
ECS PROGRAM - 4.1* - Toxic Chemicals
DURATION - 1985/86

OBJECTIVES
Conduct a literature review of the relationship between coal mining activity, and levels of trace elements, and uranium in groundwater in aquifers affected by coal mining activity.

RATIONALE
The dewatering of coal seams prior to excavation results in large quantities of groundwater being pumped into surface water bodies. It is therefore important to know what the effects on the quality of the receiving water bodies will be, especially with respect to trace metals including uranium.

DESCRIPTION
The project, which will be conducted by way of an external contract, will consist of two phases followed by a possible third depending on the outcome of phases 1 and 2. Phases 1 and 2 were completed as of March 31, 1985. The timing of phase 3 is yet to be established between the coordinators and the contractor. Phase 3 would consist of an actual program of groundwater sampling in the field followed by analysis, data interpretation and report preparation. The sampling would involve approximately 3 weeks of field time during the summer or autumn of 1985. Reporting on phase three could be expected to be complete by the end of March, 1986. The resource requirements for this project cannot be estimated at his time.

COORDINATOR(S) - D. Gregor, D. McNaughton

RESOURCES
N/A

* Affiliated ECS Program(s) -

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
390-85 NWT Water Quality Monitoring Network

SUBMITTER - 0001
ECS PROGRAM - 1.3* - Water Quality Management Data
DURATION - Ongoing since 1978

OBJECTIVES
In cooperation with Water Resources Branch (WRB), to monitor the quality of surface waters at 17 locations in the NWT, to prepare the regional ambient water quality data reports and the periodic reports on the quality of the aquatic environment.

RATIONALE
Since the NWT are classified as Federal Lands the water quality at 17 sites considered to be of significant interest to Environment Canada is being monitored. These data are required for the report on the quality of the aquatic environment.

DESCRIPTION
A total of 17 sites will be monitored as stations of significant federal interest. These sites are co-located with the hydrometric sites and are sampled by WRB at time of visit.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	NWT Totals	
A Base	PY Prof		0.02	0.12	0.26		
	PY Tech	0.15	0.15	0.05**		0.39	PY TOTAL
	Salary	3.06	5.13	6.92**	11.7	11.70	
	O & M	2.08	3.01	8.50		8.50	
	Capital	0.98	1.42	-		-	
PY Total		0.15	0.17	0.12	0.26	0.38	
Total Dollars		6.12	9.56	5.40	11.70	25.60	TOTAL$

* Affiliated ECS Program(s) - 1.1
** Includes Water Resources Branch resources (1.52K)

NOTE: NWT person years include 0.26 PY's office support for all projects

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
390-85 NWT Water Quality Monitoring Network

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
70	Mackenzie River near Fort Providence	00NW10FB0001	V	ALK_P
				ALK_T
71	Camsell River at outlet of Clut Lake	00NW10JA0001	V	AS_D_D
				BA_T
72	Coppermine River at outlet of Point Lake	00NW10PB0001	V	B_D_D
				CA
73	Tree River near mouth	00NW10QA0001	V	CD_T*
				CL
74	Ellice River near mouth	00NW10QD0001	V	COLO_TR_R
				COND_F
75	Back River near Deep Rose Lake	00NW10RC0001	V	COND_L_R
				CO_T*
76	Great Bear River at outlet of Great Bear Lake	00NW10JC0001	V	CU_T
				C_DO_L
77	Mackenzie River at Norman Wells	00NW10KA0001	V	C_PO
				F
78	Anderson River above Carnwath River	00NW10NC0001	V	FE_E
				K
79	Mackenzie River above Arctic Red River	00NW10LA0003	V	MET_T
				MG
80	Peel River at Fort McPherson	00NW10MC0001	V	MN_E
				NA
81	Quoich River near Baker Lake	00NW06MB0001	V	NI_T*
				NO23_L
82	Kazan River above Kazan Falls	00NW06LC0001	V	N_D_L
				N_P
83	Baker Lake 1.6 Km. from Baker Lake	01NW06MA0001	V	PB_T*
				PH_F
84	Thelon River above Thelon Bluffs	00NW06JC0001	V	PH_L_R
				P_D_L
85	Lockhart River below Artillery Lake	00NW07RD0001	V	P_T
				RES_NF
S1	Cameron River below Reid Lake		V	SE_D_D
				SIO2
				SO4
				TEMP_F
				TEMP_L_R
				TURB_L_R
				V_T*
				ZN_T*

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
378-85 Aquatic Sensitivity to Acid Rain - Mapping

SUBMITTER - 0003
ECS PROGRAM - 4.1 - Toxic Chemicals
DURATION - 1984/85

OBJECTIVES

(1) To compile and map the available data for the NWT for aquatic sensitivity to acid rain in accordance with guidelines established by the Western Canada LRTAP Committee. (2) To provide assistance and coordination to the provinces of Manitoba, Saskatchewan, and Alberta in their mapping. (3) Identify sensitive or potentially sensitive areas requiring further data collection.

RATIONALE

The Western Canada LRTAP Committee has recommended that all of Western Canada should be mapped. WQB is providing support for the NWT through computerized isochronal mapping capabilities. In order to ensure that the maps for all three provinces are comparable, WQB is providing mapping assistance and overall coordination.

DESCRIPTION

NAQUADAT data and other water quality data available for the last 10 years for the NWT have been screened for suitability within this excercise. Stations on large river systems and lakes which receive drainage from heterogeneous soil types and rock parent materials were excluded. The remaining stations will be used in the preparation of isochronal maps for pH, Ca, Mg, Alk and Al, which together with the terrestrial sensitivity maps should outline sensitive areas and/or areas requiring more data. This information will be compiled with that of other provinces to prepare a map for Western Canada. The results for NWT will be presented at a conference in Yellowknife.

COORDINATOR(S) - D. Gregor

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	Totals	
A Base	PY Prof			0.1		0.1	PY TOTAL
	PY Tech					-	
	Salary			4.5		4.5	
	O & M			3.0		3.0	
	Capital					-	
						7.5	TOTAL $
Recov.	PY Prof						
	PY Tech						
	Salary						
	O & M						
	Capital						
PY Total				0.1		0.1	
Total Dollars				7.5		7.5	

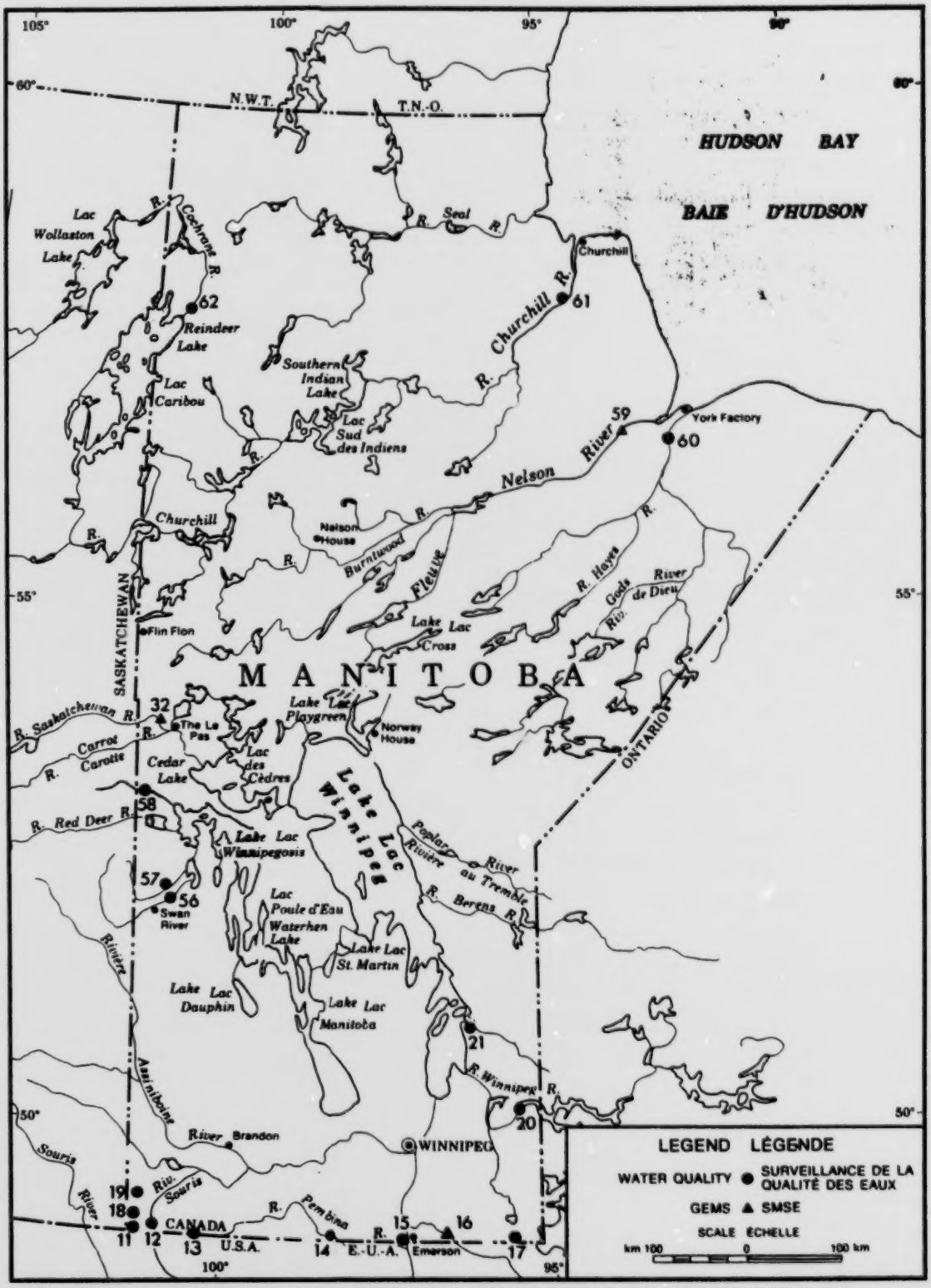


FIGURE 12 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

FIGURE 13 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

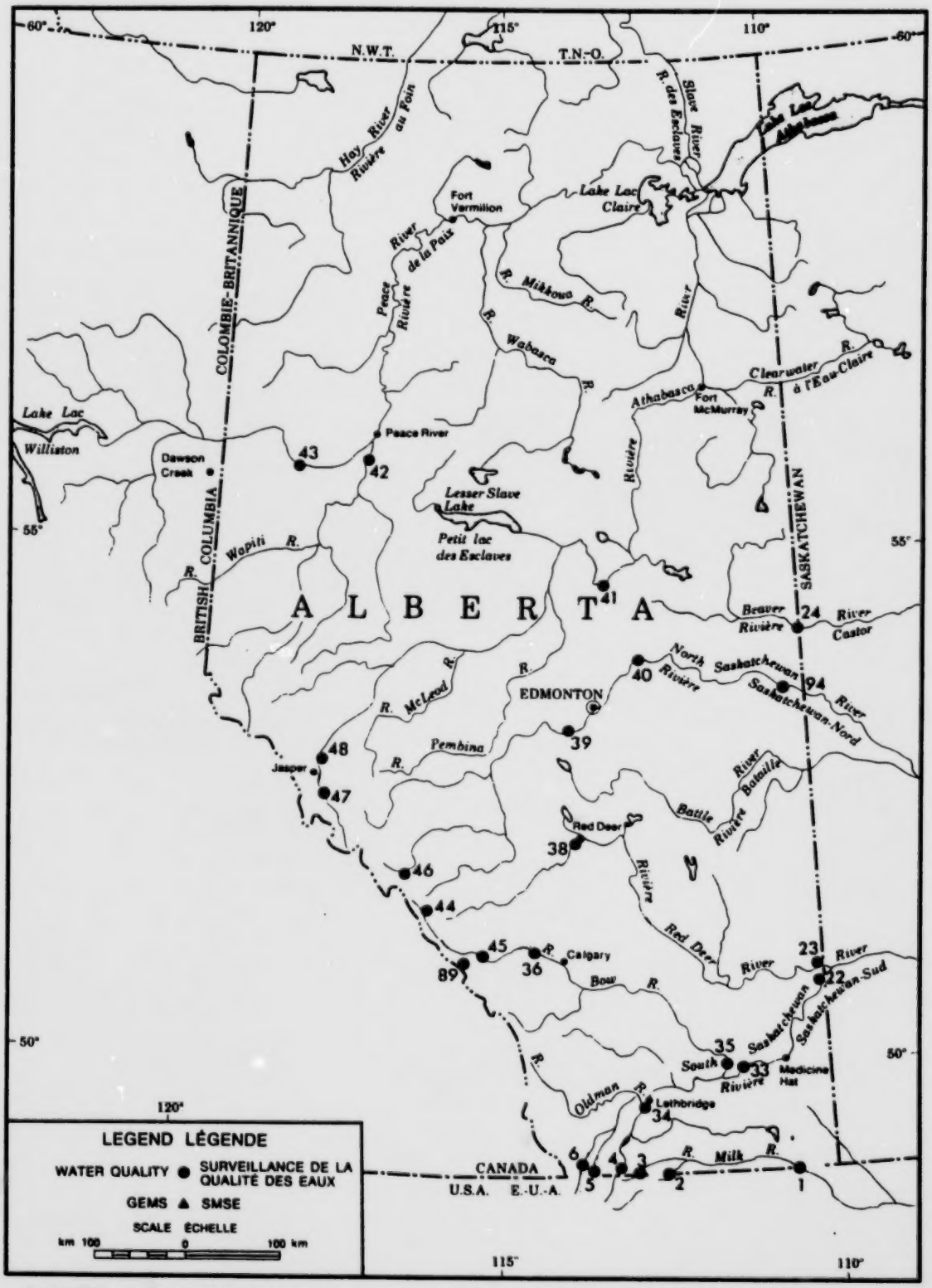


FIGURE 14 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

D.4.1 NORTHWEST TERRITORIES

Région du Nord-ouest

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
391-85 Mackenzie River Basin Bilateral Agreements

SUBMITTER - N/A
ECS PROGRAM - 1.1* - Interjurisdictional Water Management
DURATION - 85/86

OBJECTIVES

1 To input to the development of bilateral agreements for the Mackenzie River Basin

2 To participate, as required, in the design of studies and negotiation of implementation agreements as an advisor to the Mackenzie River Basin Task Force or as a member of specific working groups which may be formed.

RATIONALE

WQB has the responsibility to provide data and analysis when requested on interprovincial river systems.

DESCRIPTION

Data requests will be responded to and analysis and advice provided as requested by the Mackenzie River Basin Task Force.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category	Nat Lab	Reg Lab	Field	Admin.	NWT Totals
A Base PY Prof			0.07		0.07
PY Tech			-		-
Salary			3.16		3.16
O & M			2.80		2.80
Capital			-		-
PY Total			0.07		0.07
Total Dollars			5.96		5.96

* Affiliated ECS Program(s) -

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
392-85 Interjurisdictional Monitoring by WRB

SUBMITTER - 0003
ECS PROGRAM - 1.1 - Interjurisdictional Water Management
DURATION - Ongoing

OBJECTIVES

1 To conduct monthly or time of visit water quality sampling at the designated interjurisdictional locations.

2 To prepare the data collected from these sites for the detailed data reports.

RATIONALE

WQB has aresponsibility to measure the water quality of interjurisdictional river systems.

DESCRIPTION

Monthly or time of visit samples are collected for a wide spectrum of parameters. The governments concerned are notified of potential or real problems. The data are reviewed on an annual basis to assess the relative quality of the boundary streams.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	NWT Totals
A Base	PY Prof		0.01	0.01		0.01 PY TOTAL
	PY Tech	0.13	0.06	0.03 *		-
	Salary	2.67	1.94	1.35 *		0.45
	O & M	1.82	1.08	-		1.50
	Capital	0.86	0.51	-		-
PY Total		0.13	0.07	0.04 *		0.01
Total Dollars		5.35	3.53	1.35 *		1.95

* Includes Water Resources Branch resources

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
392-85 Interjurisdictional Monitoring by WRB

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
49	Slave River at Fitzgerald	00AL07NB0001	M	ALK_P
				ALK_T
50	Hay River near Highway # 5	00NW070B0001	M	AS_D_L
				BA_T
51	Liard River above Fort Simpson	00NW10ED0002	M	B_D_D
				CA
				CD_T*
				CL
				CN
				COLI_F_F
				COLI_T_F
				COLO_TR_R
				COND_F
				COND_L_R
				CO_T*
				CU_T
				C_DO_D
				C_PO
				F
				FE_D_L
				HERB
				K
				MET_T
				MG
				MN_D_L
				NA
				NI_T*
				NO23_D
				N_D_D
				N_P
				O2_D
				OC/PCB
				PB_T*
				PHENOL
				PH_F
				PH_L_R
				P_D_D
				P_T
				RES_NF
				SE_D_L
				SIO2
				SO4
				TEMP_F
				TEMP_L_R
				TURB_L_R
				V_T*
				ZN_T*

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
393-85 NWT Water Quality Objectives Program

SUBMITTER - N/A
ECS PROGRAM - 1.1 - Interjurisdictional Water Management
DURATION - Commencing 85/86 and Ongoing

OBJECTIVES

1 To participate in the promotion and negotiation of water quality objectives with the Mackenzie River Basin Bilateral Alta-NWT Committee.

2 To initiate and develop ongoing contacts for the purpose of promoting water quality objectives with Parks Canada and the NWT Water Board.

RATIONALE

WQB has the responsibility to promote water quality objectives on all waters of federal interest, and to participate as required in their negotiation and implementation on interprovincial waters.

DESCRIPTION

The data requests and analysis of transboundary water quality provided to the Mackenzie River Basin Task Force will be used to identify water quality objectives at the Alta-NWT boundary. Ongoing contacts with the NWT Water Board and Parks Canada will be maintained to promote the establishment of water quality objectives on additional watercourses in the NWT.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	NWT Totals
A Base	PY Prof			0.07		0.07
	PY Tech			-		-
	Salary			3.16		3.16
	O & M			1.00		1.00
	Capital			-		-
PY Total				0.07		0.07
Total Dollars				4.16		4.16

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
394-85 DOE - INAC Water Quality Agreement

SUBMITTER - N/A
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - 1985-87

OBJECTIVES

1 To commence negotiations of a Canada - NWT water quality agreement with INAC.

RATIONALE

IWD will seek a water quality agreement with INAC in order to: design a more cost-efficient monitoring network and data base; increase sampling capability where required; increase the comparability of water quality data between INAC and IWD; eliminate redundant monitoring; create an integrated data management system.

DESCRIPTION

The Yellowknife office currently administers an informal agreement with INAC wherein WSC picks up samples from 22 stations at time of visit for delivery to INAC. The formal water quality agreement will rationalize and integrate the two water quality monitoring programs. A draft DOE - INAC water quality monitoring agreement will be prepared for legal review by March 31, 1986.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	NWT Totals
A Base	PY Prof			0.15		0.15
	PY Tech			-		-
	Salary			6.78		6.78
	O & M			2.00		2.00
	Capital			-		-
PY Total				0.15		0.15
Total Dollars				8.78		8.78

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
395-85 Nahanni National Park Monitoring Agreement

SUBMITTER - 0001
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - Ongoing since April 1980

OBJECTIVES

To collect quarterly water samples from the Flat River to provide an overview of water quality characteristics.

RATIONALE

IWD has a cost sharing Agreement with Parks Canada for hydrometric work in Nahanni Park. Included in this is the requirement for water quality monitoring on the Flat River.

DESCRIPTION

Quarterly sampling is carried out by WRB at the hydrometric station on the Flat River.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	NWT Totals
A Base	PY Prof			0.01		0.01
	PY Tech	0.01	0.01	0.01 *		-
	Salary	0.21	0.29	0.75 *		0.45
	O & M	0.15	0.20			0.40
	Capital	0.07	0.09			-
PY Total		0.01	0.01	0.02 *		0.01
Total Dollars		0.43	0.58	1.15 *		0.85

* includes Water Resources Branch resources

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
395-85 Nahanni National Park Monitoring Agreement

STATION LIST

Map no.	Station location	NAQUADAT no.	Sampling frequency	Parameter
86	Flat River near mouth	OONW10EA0004	V	ALK_P
				ALK_T
				AS_D_L
				BA_T
				B_D_D
				CA
				CD_T*
				CL
				COLO_TR_R
				COND_F
				COND_L_R
				CO_T*
				CU_T
				C_DO_D
				C_PO
				F
				FE_D_L
				K
				MET_T
				MG
				MN_D_L
				NA
				NI_T*
				NO23_D
				N_D_L
				N_P
				PB_T*
				PH_F
				PH_L_R
				P_D_D
				P_T
				RES_NF
				SE_D_L
				SIO2
				SO4
				TEMP_F
				TEMP_L_R
				TURB_L_R
				V_T*
				ZN_T*

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
396-85 S. Nahanni River Basin Study Plan

SUBMITTER - N/A
ECS PROGRAM - 1.3 - Water Quality Management Data
DURATION - 1985/86

OBJECTIVES

1 To develop a plan for carrying out a baseline water quality survey in the S. Nahanni River Basin.

RATIONALE

IWD has the responsibility to provide information on emerging trends on all waters of federal interest. A baseline water quality survey of the S. Nahanni River Basin must be undertaken prior to anticipated intensive mining development in order to provide this information.

DESCRIPTION

A study plan will be prepared with the assistance of the Regional Office, and in cooperation with Parks Canada, to carry out a water quality survey of the S. Nahanni River Basin in FY 86/87.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category	Nat Lab	Reg Lab	Field	Admin.	NWT Totals
A Base PY Prof			0.06		0.06
PY Tech			-		-
Salary			2.71		2.71
O & M			2.80		2.80
Capital			-		-
PY Total			0.06		0.06
Total Dollars			5.51		5.51

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
397-85 Mackenzie River Hydrocarbon Survey

SUBMITTER - N/A
ECS PROGRAM - 4.1* - Toxic Chemicals
DURATION - 1985 to 1987

OBJECTIVES
1 To carry out a baseline water quality survey, focussing on station evaluations, heavy metals and hydrocarbons, on the Mackenzie River.

RATIONALE
IWD has the responsibility to provide information on emerging trends on all waters of federal interest. A baseline water quality survey of the Mackenzie River must be undertaken prior to anticipated intensive mining and hydrocarbon development.

DESCRIPTION
The study will be undertaken in conjunction with NWRI, Winnipeg. The first survey will take place during the summer of 85. Data evaluation from this survey wil provide guidance for designing the second year of monitoring. Sediment and water column analysis for metals and hydrocarbons will be carried out by NWRI, while physicals, nutrients and major ions will be carried out by IWD-WQB.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	NWT Totals
A Base	PY Prof			0.09		0.09
	PY Tech			0.17**		
	Salary			9.15**		4.05
	O & M			5.0		5.0
	Capital			5.0		5.0
					Total	14.05
Recov.	PY Prof					
	PY Tech					
	Salary					
	O & M		(NOGAP)	30.00		30.00
	Capital		(NOGAP)	2.00		2.00
PY Total				0.26		0.09
Total Dollars				51.15		46.05

* Affiliated ECS Program(s) -
** includes NWRI resources

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
398-85 Coppermine- Heavy Metal Surveys

SUBMITTER - N/A
ECS PROGRAM - 4.1 - Toxic Chemicals
DURATION - 1985/86

OBJECTIVES
1 To conduct intensive freshette sampling for heavy metals and other parameters on the Coppermine and Thelon Rivers in order to better understand parameter flux during this period.

RATIONALE
Parameter flux during freshette represents an important data gap for toxic particulates. The timing of the freshette survey with WRB high flow-rating activities provides an opportunity to collect useful information in a cost-effective manner.

DESCRIPTION
Sampling will be undertaken prior to break-up on the Coppermine River . WSC will sample on an approximately daily basis during break-up and freshette. and subsequent samples will be taken during summer low flows.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category		Nat Lab	Reg Lab	Field	Admin.	NWT Totals
A Base	PY Prof			0.07		0.07
	PY Tech			0.04*		-
	Salary			4.36*		3.15
	O & M			-		1.0
	Capital			-		-
	PY Total			0.11*		0.07
	Total Dollars			4.36*		4.15

* includes Water Resources Branch resources

WATER QUALITY BRANCH - WNR - PROGRAM OUTLINE - 1985/86
399-85 NWT Development Projects Screening

SUBMITTER - N/A
ECS PROGRAM - 4.3 - Environmental Assessment and Baseline Studies
DURATION - Ongoing

OBJECTIVES
To fulfill NWT program responsibilities for FEARO and RSCC project reviews.

RATIONALE
IWD has the responsibility to advise on the suitability of project design when requested, in order to promote environmentally responsible development.

DESCRIPTION
All NWT projects referred by FEARO and the RSCC will be reviewed and commented upon.

COORDINATOR(S) - B. Olding

RESOURCES ($'000)

Category	Nat Lab	Reg Lab	Field	Admin.	NWT Totals
A Base PY Prof			0.09		0.09
PY Tech			-		-
Salary			4.07		4.07
O & M			-		-
Capital					
PY Total			0.09		0.09
Total Dollars			4.07		4.07

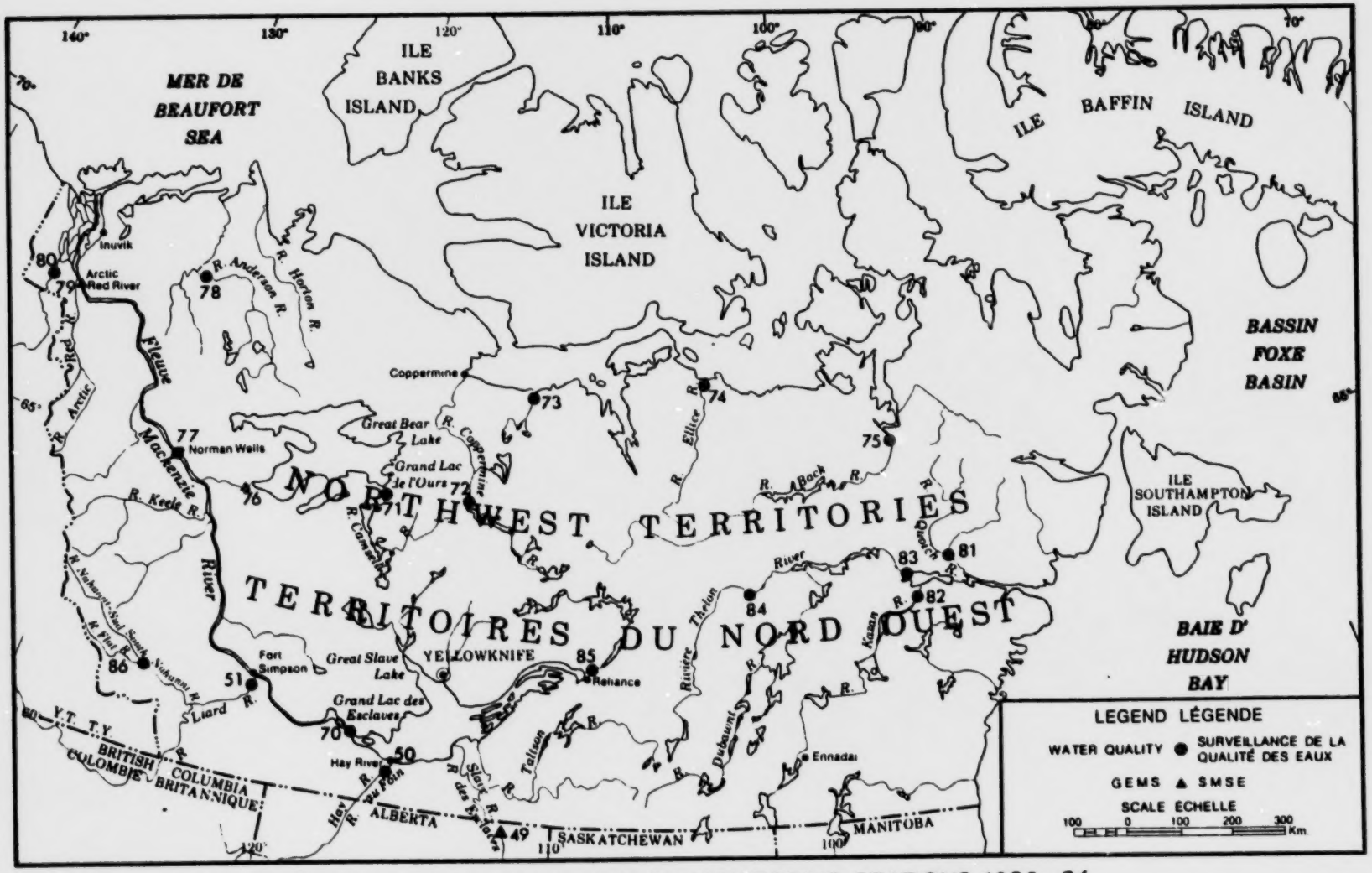


FIGURE 15 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

D.5 PACIFIC AND YUKON REGION

Région du Pacifique et du Yukon

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 02

PROJECT TITLE: WATER QUALITY OBJECTIVES
Project Coordinator: D. Valiela
Project Alternate(s): L.J. Zeman, W.E. Erlebach, D.D. MacDonald

ECS NATIONAL PROGRAM NAME: Canada-United States and Interjurisdictional Water Management/Toxic Chemicals
ECS CODE: 1.1/4.1

Goals: To provide management with information for negotiating, establishing and maintaining water quality ojectives on rivers where federal interest dictates by identifying uses, key water quality variables, toxic chemicals pollution, and its sources. To determine trends in aquatic environmental quality and assess conformity with water quality requirements used to control municipal and industrial discharges to receiving waters.

Rationale: By participating in the development of Water Quality Objectives on international, interprovincial and interjurisdictional waters within the region the Water Quality Branch is promoting the wise use of those resources.

Description:
a. Review four provincial draft WQO's documents as provided.
b. Review four provincial draft water quality assessment and objectives documents on toxic chemicals as provided.
c. Develop concepts and approaches to collect information and water quality data necessary to establish WQO's.
d. Support HQ staff in developing concepts and approaches for WQO's by:
   (i) Reviewing Fish and Aquatic Life Chapter of Canadian Guidelines for Water Quality
   (ii) Providing other support as required

RESOURCES: ($'000)

	1.1	4.1	Total
PY Technical	0.0	0.0	0.0
PY Professional	0.15	0.35	0.50
Total PY	0.15	0.35	0.50
Salary	5.5	12.7	18.2
O&M	5.0	1.0	6.0
Contracts	0.0	0.0	0.0
Capital	0.0	1.0	1.0
Total	10.5	14.7	24.2

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 3a

PROJECT TITLE: FLATHEAD RIVER WQO'S
Project Coordinator: D. Valiela
Project Alternate(s): D.D. MacDonald

ECS NATIONAL PROGRAM NAME: Canada-United States and Interjurisdictional Water Management/Water Quality Management
ECS CODE: 1.1/1.3/4.1 Data/Toxic Chemicals

Goals: To provide management with information for negotiating, establishing and maintaining Water Quality Objectives on the Flathead River by identifying ambient levels and trends for key water quality variables. Provide information on the possible impacts of development on water quality in the river.

Rationale: Impending development of coal resources in the Flathead River watershed is perceived as having considerable potential for impact on downstream users in the State of Montana through degradation of water quality. By participating in the formulation of WQO's for the Flathead, the Branch is promoting the wise use of that resource, and minimizing the potential for an international dispute.

Description: Using concepts and approaches developed, collect the information and water quality data necessary to establish Water Quality Objectives for the Flathead River. Specifically to:

a. Collect site-specific data for four priority water quality variables
   - two trips by September 30, 1985
   - one trip by December 31, 1985
   - one trip by March 31, 1986

b. Complete first draft of reports on water quality and metals criteria for fish by March 31, 1986.

c. Provide support to I.J.C. as required.

RESOURCES: ($'000)

	1.1	1.3	4.1	Total
PY Technical	0.0	0.0	0.0	0.00
PY Professional	0.10	0.15	0.25	0.50
Total PY	0.10	0.15	0.25	0.50
Salary	3.6	5.5	9.1	18.2
O&M	9.7	0.0	1.8	11.5
Contracts	3.5	0.0	3.5	7.0
Capital	0.0	0.0	0.0	0.0
Total	16.8	5.5	14.4	36.7

STATION DESCRIPTION

Project No. 03

MAP NUMBER	STATION LOCATION	NAQUADAT NUMBER	SAMPLING FREQUENCY	PARAMETERS
1	Flathead River 0.3 km above USA/Canada Border	00BC08NP0003	20	Nutrients Metals, NFR
2	Flathead River 1.3 km east of Marl Lake	00BC08NP0002	20	Nutrients Metals, NFR
3	Howell Creek 0.75 km above Flathead River Confluence	00BC08NP0008	20	Nutrients Metals, NFR
4	Howell Creek 0.4 km above Cabin Creek Confluence	00BC08NP0004	1-3	NFR

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 3b

PROJECT TITLE: FLATHEAD RIVER WQO'S - EUTROPHICATION
Project Coordinator: D. Valiela
Project Alternate(s): D.D. MacDonald

ECS NATIONAL PROGRAM NAME: Canada-United States and Interjurisdictional Water Management/Water Quality Management Data/Toxic Chemicals
ECS CODE: 1.1/1.3/4.1

Goals:
To provide management with information for negotiating, establishing and maintaining Water Quality Objectives on the Flathead River by developing site-specific water quality criteria for nutrients. Provide information on the possible impact of development (and associated elevated nutrient levels) on water quality and beneficial water uses in the river.

Rationale:
Impending development of coal resources, and ongoing gas exploration and timber harvesting activities in the Flathead River watershed, is perceived as having considerable potential for impact on downstream users in the State of Montana through degradation of water quality. Nutrient levels and the potential for eutrophication of the Flathead River and Flathead Lake are specific concerns identified by downstream water users and U.S. government agencies. By participating in the formualtion of WQO's for the nutrients in the Flathead River basin, the Branch is promoting the wise use of the aquatic resource, and its thereby minimizing the potential for an international dispute.

Description:
Using concepts and approaches developed, collect information and water quality data necessary to establish WQO's for nutrients for the Flathead River. Specifically to:

a. Test nutrient delivery systems in order to develop a system amenable to *in situ* studies of algal responses to various nutrient regimes.

b. Assess the feasibility of adapting the N.W.R.I. experimental flowing troughs to nutrient criteria work in the Flathead River.

c. Complete the first draft of a report on water quality criteria for nutrients by March 31, 1986.

RESOURCES: ($'000)

	1.1	1.3	4.1	Total
PY Technical	0.00	0.00	0.00	0.00
PY Professional	0.10	0.10	0.05	0.25
Total PY	0.10	0.10	0.05	0.25
Salary	3.6	3.6	1.8	9.0
O&M	0.0	0.0	0.0	0.0
Contracts	29.0	0.0	0.0	29.0
Capital	0.0	0.0	0.0	0.0
Total	32.6	3.6	1.8	38.0

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 3c

PROJECT TITLE: FLATHEAD RIVER WQO'S - SEDIMENT
Project Coordinator: D.D. MacDonald
Project Alternate(s): D. Valiela

ECS NATIONAL PROGRAM NAME: Canada-United States and Interjurisdictional Water Management/Water Quality Management Data
ECS CODE: 1.1/1.3

Goals:
To provide management with information for negotiating, establishing and maintaining Water Quality Objectives on the Flathead River by identifying ambient levels and trends for water-borne and deposited sediments. Provide information on the possible impact of development (and associated sediment) on water quality and beneficial water uses in the river.

Rationale:
Impending development of coal resources, and ongoing gas exploration and timber harvesting activities in the Flathead River watershed are perceived as having considerable potential for impact on downstream users in the State of Montana through the degradation of water quality. Elevated levels of suspended sediment in water and deposited sediment in stream-bed substrates could have detrimental effects on beneficial water uses downstream of developments. By particpating in the formuation of WQO's for sediment in the Flathead River basin, the Branch is promoting the wise use of the aquatic resource, and is thereby minimizing the potential for an international dispute.

Description:
Using concepts and approaches developed, collect the information and water quality data necessary to establish WQO's for sediment designed to conserve and protect beneficial water uses, particularly fish and aquatic life, in the Flathead River basin. Specifically to:

a. Determine levels of fine sediment in natural bull trout spawning areas in the Flathead River basin (particularly in Howell Creek).

b. Collect site-specific data for suspended sediments.
   - two trips by September 30, 1985
   - one trip by December 31, 1985
   - one trip by March 31, 1985.

c. Develop site-specific water quality criteria for sediment in the Flathead River mainstem and Howell Creek.

RESOURCES: ($'000)

	1.1	1.3	Total
PY Technical	0.0	0.0	0.0
PY Professional	0.15	0.15	0.3
Total PY	0.15	0.15	0.3
Salary	5.5	5.5	11.0
O&M	10.0	0.0	10.0
Contracts	0.0	0.0	0.0
Capital	0.0	0.0	0.0
Total	15.5	5.5	21.0

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 01

PROJECT TITLE: BRANCH SUPPORT
Project Coordinator: W.E. Erlebach
Project Alternate(s): G. Moyle

ECS NATIONAL PROGRAM NAME: Water Quality Management Data and Toxic Chemicals
ECS CODE: 1.3/4.1

Goals: To provide common services to facilitate operations with the Branch.

Rationale: In order to maintain control over expenditures not directly attributable to specific projects, common services have been grouped in a Support Service category.

Description: Training, conferences, journal subscriptions and library stock will be supported at an appropriate level to ensure the availability of opportunities to maintain Branch expertise. Hydro and communication systems are provided, including telephones, telecopiers, etc. Secretarial and technical support not specific to other projects, together with general management and planning functions are included. Fleet management, including gas/oil and maintenance services, will also be provided.

RESOURCES: ($'000)

	1.3	4.1	Total
PY Technical	0.0	0.0	0.0
PY Professional	0.8	2.3	3.1
Total PY	0.8	2.3	3.1
Salary	29.1	83.7	112.8
O&M	6.0	37.0	43.0
Contracts	0.0	0.0	0.0
Capital	0.0	26.1	26.1
Total	35.1	146.8	181.9

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 08

PROJECT TITLE: STIKINE RIVER
Project Coordinator: L.M. Churchland
Project Alternate(s): C. Thorp

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To describe current water quality conditions and identify concerns related to the potential impact of dam construction on the Stikine River, which flows from British Columbia into the Alaskan Panhandle. This information will contribute to the design of a long-term monitoring program, the establishment of Water Quality Objectives, and the assessment of environmental changes.

Rationale: The Iskut-Stikine River basin in northwestern B.C. has been identified by the B.C. Hydro and Power Authority as a potential site for hydroelectric development. Officials for the State of Alaska have stated their concerns regarding the impact of this development on downstream ecology; thus the need for a federal response is clearly indicated.

Description: One paper will be completed by September 30, 1985 which will serve as a chapter for the interpretive report; a paper will be completed on "Sources of Variability in Collection and Analysis of Suspended Sediments for Water Quality Programs".

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.15	0.15
Total PY	0.15	0.15
Salary	5.5	5.5
O&M	1.5	1.5
Contracts	0.0	0.0
Capital	0.0	0.0
Total	7.0	7.0

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 09

PROJECT TITLE: DATA AND INTERPRETIVE REPORTS
Project Coordinator: S.W. Sheehan, L.J. Zeman
Project Alternate(s): L.M. Churchland

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To complete and publish data and interpretive reports, including scientific papers on water quality studies, surveys, and related method development including documentation of software.

Rationale: Published reports are an essential form of communication in order that resource managers and their supporting technical staff, other members of the scientific and engineering communities, and the public at large become aware of conditions, trends and developments affecting the aquatic environment.

Description: A document on the use of Tell-a-graf will be completed by March 31, 1986. The manual is written to illustrate the use of Tell-a-graf for drawing scientific figures, particularly graphs with error bars. A draft data report on the Peace River which will contain detailed chemical data will be completed by September 30, 1985, with the final report completed by March 31, 1986. A paper on Phosphorus Loads in the Okanagan River will be presented and published in conference proceedings by September 30, 1985. A paper on nutrient concentration/loads in the Okanagan River will be written by March 31, 1986.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.3	0.3
Total PY	0.3	0.3
Salary	10.9	10.9
O&M	2.5	2.5
Contracts	7.0	7.0
Capital	0.0	0.0
Total	20.4	20.4

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 17

PROJECT TITLE: MONITORING DIVISION SUPPORT
Project Coordinator: P.H. Whitfield
Project Alternate(s): A.C. Thorp

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide services of a general nature not attributable to specific projects.

Rationale: In order to maintain control over expenditures not directly attributable to specific projects.

Description: Overhead activities such as planning etc. of a divisional nature which cannot be directly attributed to a specific project. This activity also covers the cost of travel necessary to participate in national meetings of Divisional Heads.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.2	0.2
Total PY	0.2	0.2
Salary	7.3	7.3
O&M	2.5	2.5
Contracts	0.0	0.0
Capital	3.4	3.4
Total	13.2	13.2

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 18

PROJECT TITLE: FEDERAL WATER QUALITY MONITORING, BRITISH COLUMBIA

Project Coordinator: A.C. Thorp
Project Alternate(s): P.H. Whitfield

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide continuing and pertinent water quality data responding to federal needs and interests, and where there is a potential for interjurisdicitonal disputes.

Rationale: A national overview of water quality conditions which can be used to respond to federal needs in developing general policy and legislation is required. Sampling at selected stations on a continuing basis also exhibits the federal presence and concern for water quality.

Description: Federal monitoring of a specific set of water quality variables at sites on interjursidictional, international (transboundary), interprovincial and provincial-territorial reaches is done with the cooperation of the Water Resources Branch and other agencies.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.35	0.35
Total PY	0.35	0.35
Salary	12.7	12.7
O&M	14.2	14.2
Contracts	0.0	0.0
Capital	0.0	0.0
Total	26.9	26.9

MAP NUMBER	NAQUADAT NUMBER	STATION LOCATION
15	00BC08KA0007	Fraser River at Red Pass
16	00BC08NB0007	Columbia River at Donald Station
44	00BC08NN0011	Kettle River at Midway
43	00BC08NN0021	Kettle River at Carson
42	00BC08NN0022	Kettle River at Gilpin
21	00BC08NP0006	Sage Creek at Road Bridge
37	00BC08NH0010	Moyie River at Kingsgate
20	00BC08NE0029	Pend D'Oreille River at Waneta
45	00BC08NN0010	Boundary Creek at Midway
36	00BC08MH0027	Sumas River at Huntington
53	00BC09AE0009	Swift River
55	00BC08DC0001	Bear River at Stewart
49	00BC08DC0001	Salmon River near Hyder, Alaska
41	00BC08NE0010	Big Sheep Creek at Highway Bridge
47	00BC08PA0001	Skagit River 2 km north of Bdy Obelisk
14	00BC08CG0001	Iskut River below Johnson River
10	-	Stikine River above Choquette River
11	00AK08CF0001	Stikine River near Wrangell, Alaska

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 19

PROJECT TITLE: FEDERAL SITE EVALUATIONS, BRITISH COLUMBIA
Project Coordinator: A.C. Thorp
Project Alternate(s): N. Rousseau

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To evaluate routine monitoring sites, ensuring that representative data are being gathered at each site.

Rationale: Maintaining a high standard of data for use in national overviews that may be required to respond to federal needs in developing general policy and legislation.

Description: A station evaluation study on the Kettle River to establish confidence limits for data by investigation of temporal and spatial variation at Kettle River monitoring sites is to be completed.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.2	0.2
Total PY	0.2	0.2
Salary	7.3	7.3
O&M	1.0	1.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	8.3	8.3

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 20

PROJECT TITLE: FEDERAL QUALITY ASSURANCE BRITISH COLUMBIA NATIONAL PROGRAM NAME

Project Coordinator: A.C. Thorp
Project Alternate(s): N. Rousseau

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide assurance for routine monitoring sites, ensuring that valid data are being gathered at each site.

Rationale: Maintaining a high standard of data for use in national overviews that may be required to respond to federal needs in developing general policy and legislation.

Description: A quality control study on the use of a specific ampoule for the transportation of preservatives in the field will be undertaken.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.2	0.2
Total PY	0.2	0.2
Salary	7.3	7.3
O&M	1.0	1.0
Contracts	0.0	0.0
Capital	0.3	0.3
Total	8.6	8.6

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 21

PROJECT TITLE: FEDERAL - FEDERAL/PROVINCIAL MONITORING, BRITISH COLUMBIA

Project Coordinator: A.C. Thorp
Project Alternate(s): N. Rousseau

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide continuing and pertinent water quality data responding to federal needs and interests, and where there is a potential for interjurisdictional disputes.

Rationale: A national overview of water quality conditions which can be used to respond to federal needs in developing general policy and legislation is required. Sampling at selected stations on a continuing basis also exhibits the federal presence and concern for water quality.

Description: Federal monitoring of a specific set of water quality variables at sites to be covered in the federal/provincial agreement if the agreement is not signed.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.35	0.35
Total PY	0.35	0.35
Salary	12.7	12.7
O&M	0.0	0.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	12.7	12.7

MAP NUMBER	NAQUADAT NUMBER	STATION LOCATION
35	00BC08MF0001	Fraser River at Hope (GEMS)
8	00BC08NL0005	Similkameen River
33	00BC07FD0005	Peace River above Alces River
17	-	Skeena River at Usk
19	00BC08NE0005	Columbia River at Birchbank
18	00BC08NE0001	Columbia River at Waneta
1	00BC08NP0003	Flathead River at Border
22	-	Kootenay River at Fenwick
39	00BC08NH0005	Kootenay River at Nick's Island
40	00BC08NK0009	Elk River

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 22

PROJECT TITLE: FEDERAL WATER QUALITY MONITORING, YUKON
Project Coordinator: A.C. Thorp
Project Alternate(s): P.H. Whitfield

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide continuing and pertinent water quality data responding to federal needs and interests, and where there is a potential for interjurisdictional disputes.

Rationale: A national overview of water quality conditions which can be used to respond to federal needs in developing general policy and legislation is required. Sampling at selected stations on a continuing basis also exhibits the federal presence and concern for water quality.

Description: Federal monitoring of a specific set of water quality variables at sites on interjurisdiction, international (transboundary), and provincial-territorial reaches is done with the cooperation of the Water Resources Branch and other agencies.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.2	0.2
Total PY	0.2	0.2
Salary	7.3	7.3
O&M	5.0	5.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	12.3	12.3

MAP NUMBER	NAQUADAT NUMBER	STATION LOCATION
50	00AK09ED0001	Yukon River at Eagle Alaska
68	00NW10ED0001	Liard River at Fort Liard
56	00YT10AA0001	Liard River at Upper Crossing
54	00YT09AE0001	Teslin River at Johnson's Crossing

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 23

PROJECT TITLE: FEDERAL/PROVINCIAL AGREEMENT, BRITISH COLUMBIA
Project Coordinator: P.H. Whitfield
Project Alternate(s): W.E. Erlebach

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: Assist and participate in negotiations with the Province of British Columbia for a cost-shared water quality agreement.

Rationale: Supporting a federal policy to integrate with the provinces in providing complete and harmonized data from across Canada on a cost-shared basis which will respond to the specific requirements of the federal bureaucracy and reduce the potential for duplicating the expenditure of effort and resources by the two levels of government.

Description: Discussions with provincial representatives to formulate a list of joint monitoring stations, variables to be measured and development of monitoring strategies suitable for the monitoring objectives at each site.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.1	0.1
Total PY	0.1	0.1
Salary	3.6	3.6
O&M	1.0	1.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	4.6	4.6

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 24

PROJECT TITLE: FEDERAL/TERRITORIAL AGREEMENT, YUKON
Project Coordinator: P.H. Whitfield
Project Alternate(s): W.E. Erlebach

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: Assist and participate in negotiations with Indian and Northern Affairs in the Yukon for a cost-shared water quality agreement.

Rationale: Supporting federal policy to integrate with the provinces and territories to provide complete and harmonized data from across Canada on a cost-shared basis which will respond to the specific requirements of the federal bureaucracy and reduce the potential for duplicating the expenditure of effort and resources by the two levels of government.

Description: Discussions with INAC representatives to formulate a list of joint monitoring stations, variables to be measured and development of monitoring strategies suitable for the monitoring objectives at each site.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.3	0.3
Total PY	0.3	0.3
Salary	10.9	10.9
O&M	8.3	8.3
Contracts	0.0	0.0
Capital	0.0	0.0
Total	19.2	19.2

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 25

PROJECT TITLE: MONITORING EVALUATIONS AND STRATEGIES
Project Coordinator: P.H. Whitfield
Project Alternate(s): N.E. Dalley

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide assurance that monitoring strategies employed in monitoring programs are adequate to meet the ascribed goals of monitoring at each of the sites.

Rationale: Ensuring that the data gathering programs are maximizing the return on the investment of resources.

Description: Evaluations of statistical techniques and designs in relation to the desired goal of monitoring, evaluation of sampling frequency in relation to the goals of monitoring.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.15	0.15
Total PY	0.15	0.15
Salary	5.4	5.4
O&M	1.0	1.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	6.4	6.4

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 26

PROJECT TITLE: COASTAL STREAM STRATEGIES
Project Coordinator: P.H. Whitfield
Project Alternate(s): N.E. Dalley

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide assurance that monitoring strategies employed in monitoring programs are adequate to meet the ascribed goals of monitoring of coastal streams.

Rationale: Ensuring that the data gathering programs are maximizing the return on the investment of resources.

Description: Evaluations of statistical techniques and designs in relation to the desired goal of monitoring, evaluation of sampling frequency in relation to the goals of monitoring.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.30	0.30
Total PY	0.30	0.30
Salary	10.9	10.9
O&M	1.0	1.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	11.9	11.9

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 27

PROJECT TITLE: COMPLIANCE WITH WATER QUALITY OBJECTIVES
Project Coordinator: P.H. Whitfield
Project Alternate(s): N. Rousseau

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide assurance that monitoring strategies employed in monitoring programs are adequate to meet the ascribed goals of monitoring for compliance with objectives.

Rationale: Ensuring that the data gathering programs are maximizing the return on the investment of resources.

Description: Evaluations of statistical techniques and designs in relation to the desired goal of monitoring, evaluation of sampling frequency in relation to the goals of monitoring.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.25	0.25
Total PY	0.25	0.25
Salary	9.1	9.1
O&M	1.0	1.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	10.1	10.1

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 28

PROJECT TITLE: YUKON RIVER BASIN STUDY
Project Coordinator: P.H. Whitfield
Project Alternate(s):

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To complete the preparation of a scientific paper on results obtained during the Yukon River Basin Study.

Rationale: Completion of work started under the Canada Water Act study of the Yukon River Basin.

Description: Complete final revisions to manuscript and pay publication costs.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.10	0.10
Total PY	0.10	0.10
Salary	3.6	3.6
O&M	1.0	1.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	4.6	4.6

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 29

PROJECT TITLE: KOOTENAY RIVER EAST
Project Coordinator:
Project Alternate(s):

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To evaluate the impact of point source pollution from industrial sources and estimate nutrient loadings within the Kootenay River East sub-basin.

Rationale: The portion of the Kootenay river under consideration feeds into Lake Koocanusa, an international body of water. Concerns relate to the potential for dispute arising from upstream activities within British Columbia impinging on the quality of this international underway.

Description: Preparation of reports will continue in this fiscal year with the final two reports completed. These reports deal with 1) changes in nutrient concentrations inthe St. Mary River between 1975 and 1980-82; and 2) nutrient loadings in the sub-basin.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.35	0.35
Total PY	0.35	0.35
Salary	12.7	12.7
O&M	2.0	2.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	14.7	14.7

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 30

PROJECT TITLE: LABORATORY - DIVISION SUPPORT WORK
Project Coordinator: F.T.S. Mah
Project Alternate(s): W.E. Erlebach

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide professional advice and a regional perspective to management in developing national strategies for laboratory operations.

Rationale: By providing input into policy decisions, regarding laboratory operations, at the national level, the Branch is ensuring that the Regional requirements for precise water quality data are being met.

Description: Attend meetings of the National Water Quality Laboratory Coordinating Committee, and provide input, as required, to Analytical Services Division requests.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.1	0.1
Total PY	0.1	0.1
Salary	3.6	3.6
O&M	2.5	2.5
Contracts	0.0	0.0
Capital	0.0	0.0
Total	6.1	6.1

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number : 31

PROJECT TITLE: LABORATORY MANAGEMENT
Project Coordinator: F.T.S. Mah
Project Alternate(s): G. Kan, T. Tuominen

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3, 4.1

Goals: To provide laboratory facilities and services to ensure the continuing capability of the Regional operation.

Rationale: The management, administration, and common services associated with the Regional laboratory are identified as functions that are required to maintain an adequate capability to meet program needs.

Description: Common laboratory services provided include the maintenance of the laboratory, utilities, janitorial services, rent and tenant services, shipping and receiving, etc. Administrative functions provided include contracting-out, contracting-in as a service to other government agencies, cost accounting, cost recovery, budget control and technical administration. A quality control program will be maintained to insure that the data produced are accurate and precise.

RESOURCES: ($'000)

	1.3	4.1	Total
PY Technical	1.0	0.0	1.0
PY Professional	0.2	0.0	0.2
Total PY	1.2	0.0	1.2
Salary	43.7	0.0	43.7
O&M	2.6	29.4	32.0
Contracts	9.5	0.0	9.5
Capital	11.8	3.2	15.0
Total	67.6	32.6	100.2

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 32

PROJECT TITLE: INORGANIC CHEMISTRY
Project Coordinator: F.T.S. Mah
Project Alternate(s): G.Y.P. Kan

ECS NATIONAL PROGRAM NAME: Water Quality Management Data/Toxic Chemicals
ECS CODE: 1.3/4.1

Goals: To provide capability to measure concentrations of inorganic constituents in water, sediment and biota; to conduct quality control programs required for trace metal samples forwarded to Burlington for analysis; to provide advice on monitoring design and data interpretation related to water chemistry.

Rationale: By providing the capability to analyze for inorganic constituents in water, sediment and biota, and instituting quality control programs for samples forwarded to the National Laboratory, the Branch is strengthening its water quality data base, and is thereby providing information that will contribute to the wise use of the water resources in the Region.

Description: Support for inorganic analysis will be provided to Water Quality Branch projects. Quality control samples generated from the submissions to Burlington for analysis will be analyzed.

RESOURCES: ($'000)

	1.3	4.1	Total
PY Technical	0.0	0.0	0.0
PY Professional	0.65	1.15	1.8
Total PY	0.65	1.15	1.8
Salary	23.7	51.8	75.5
O&M	4.3	1.7	6.0
Contracts	0.0	34.0	34.0
Capital	0.0	0.0	0.0
Total	28.0	87.5	115.5

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 37

PROJECT TITLE: LABORATORY RELOCATION
Project Coordinator: F.T.S. Mah
Project Alternate(s): W.E. Erlebach

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To plan for a new laboratory facility to meet Regional needs.

Rationale: By participating in the planning activities associated with the relocation of the Regional laboratory facilities, the Branch is ensuring that the requirements for analytical services will be met.

Description: A new laboratory facility will be planned in conjunction with the Department of Public Works and Facilities Management.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.2	0.2
Total PY	0.2	0.2
Salary	7.3	7.3
O&M	0.0	0.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	7.3	7.3

* Resources will be diverted to this project only if a strategic plan for relocation is developed by Administration in the 1985-86 fiscal year.

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 38

PROJECT TITLE: DATA SERVICES SUPPORT
Project Coordinator: P.H. Whitfield
Project Alternate(s): N.E. Dalley

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide services of a general nature not attributable to specific projects, and provide support to the Directorate by participation in the Information Technology Committee (ITC).

Rationale: In order to maintain control over expenditures not directly attributable to specific projects. Participation in the ITC will allow us to provide input in areas which affect our operations or areas where we can assist others with their needs.

Description: This activity primarily covers the cost of travel necessary to participate in national meetings of the ITC and PY for regional EDP coordination. Specifically it will include the following: provide regional input to the ITC-IWD on a variety of issues and topics as they arise; attend the ITC meetings in Ottawa twice yearly to voice regional concerns; prepare the annual Information Technology and Systems Plan for SID which becomes part of the Department's submission to Treasury Board; produce regional plans and recommendations for multibranch facilities; comment on proposed EDP acquisitions by the branches.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.05	0.05
Total PY	0.05	0.05
Salary	1.8	1.8
O&M	2.5	2.5
Contracts	0.0	0.0
Capital	0.0	0.0
Total	4.3	4.3

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 39

PROJECT TITLE: COMPUTER SERVICES
Project Coordinator: N.E. Dalley
Project Alternate(s): P.H. Whitfield

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To provide general computer services to facilitate the working operations of the Branch. To take advantage of computerized functions where these can increase branch productivity.

Rationale: This computer services project has facilitated our ability to provide computing services to the branch. The Branch is in a position to negotiate favourable contracts with these services thereby controlling expenditures, and enhancing the usefulness of these facilities. In addition services are being provided by microcomputers which are contributing a growing portion of computing capabilities to the branch because of their low cost and widely available, inexpensive software.

Description: Support for computer processing of water quality data through software and system utilities. Specific projects and results: continued staff training on the use of both microcomputer and mainframe software; development of a water quality data base system using the ORACLE relational database management system and report on the implementation; report on the procedure for transferring documents from word processing and other microcomputer systems to mainframes; investigate acquisition of additional computing facilities for the Branch; investigate capabilities and costs of local area networks (LAN's) which will allow communication between various IWD processors with the capability of interfacing with future additional acquisitions; determine specifications necessary for new equipment such that it will be able to interface with LAN.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.5	0.5
Total PY	0.5	0.5
Salary	18.2	18.2
O&M	9.2	9.2
Contracts	27.0	27.0
Capital	28.2	28.2
Total	82.6	82.6

P R O J E C T D E S C R I P T I O N
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 40

PROJECT TITLE: ELECTRONIC DATA ACQUISITION - LABORATORY
Project Coordinator: N.E. Dalley
Project Alternate(s): P.H. Whitfield

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To assist the Water Quality Laboratory in specifying the requirements for automatic data acquisition from analytical instruments.

Rationale: There is a potential for reducing the manpower required to produce laboratory data in machine readable form. Specification of the type of system that will handle this is the first step in converting the lab to automatic data acquisition.

Description: Prepare an inventory of current laboratory instruments detailing the input and output capabilities of each; review available information on existing technology and prepare a proposal describing the types of equipment which will satisfy the lab's requirements.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.05	0.05
Total PY	0.05	0.05
Salary	1.8	1.8
O&M	1.0	1.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	2.8	2.8

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 41

PROJECT TITLE: ELECTRONIC DATA ACQUISITION - FIELD
Project Coordinator: N.E. Dalley
Project Alternate(s): P.H. Whitfield

ECS NATIONAL PROGRAM NAME: Water Quality Management Data
ECS CODE: 1.3

Goals: To demonstrate effective operation of a continuous monitoring electronic water quality station with telephone and telemetry capabilities. To establish a satellite data gathering platform to enable the testing of new technology in data gathering.

Rationale: There is a potential for reducing the costs of certain monitoring efforts through new technology. Testing and development of this new technology is the first step in realizing the potential savings.

Description: Select appropriate sensors and design enclosure for field placement of sensors. Select appropriate enclosure for field placement of electronics (Microscout). Select and purchase modems which will allow for remote polling of Microscout. Review available information on existing satellite technology and prepare a proposal for acquisition of necessary equipment to allow use of Microscout with satellite platform or telemetry equipment. Negotiate with Water Resources Branch for use of a satellite platform for use in methods development and equipment testing.

RESOURCES: ($'000)

	1.3	Total
PY Technical	0.0	0.0
PY Professional	0.35	0.35
Total PY	0.35	0.35
Salary	12.7	12.7
O&M	4.3	4.3
Contracts	0.0	0.0
Capital	6.6	6.6
Total	23.6	23.6

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 04

PROJECT TITLE: SIMILKAMEEN RIVER WQO'S
Project Coordinator: L.J. Zeman
Project Alternate(s): D. Valiela, D.D. MacDonald

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals:
To develop an understanding of water pollutant - aquatic environment interactions arising from changes in water quality attributable to land and water uses to facilitate the formulation of water quality objectives specific to the border reach of the Similkameen River.

Rationale:
As a significant Interior Plateau stream, the Similkameen River is subject to heavy pollutant loadings from agricultural, urban and particularily mining sources. Investigations of toxic metals and organics in water sediment and fish, and of periphyton growth will contribute to the understanding of the human and environmental risks associated with the amounts and forms of toxic chemicals released into the river. This information, in turn, will facilitate the formulation of water quality objectives designed to protect beneficial water uses (domestic, agricultural and fisheries uses), and thereby limit the impact of developments in Canada on downstreamm users in the State of Washington to an acceptable level.

Description:
Using the appropriate concepts and approaches, collect, analyze and interpret information and water quality data necessary to formulate site specific WQO's for the Similkameen River. Specifically to:

a. Complete the first draft of a report on formulation of WQO's for the Similkameen River by March 31, 1986.

b. Complete the first draft of an interpretive report on toxic substances in the Similkameen River by March 31, 1986.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.4	0.4
Total PY	0.4	0.4
Salary	14.6	14.6
O&M	3.5	3.5
Contracts	9.5	9.5
Capital	0.0	0.0
Total	27.6	27.6

STATION DESCRIPTION

Project No. 04

MAP NUMBER	STATION LOCATION	NAQUADAT NUMBER	SAMPLING FREQUENCY	PARAMETERS
6	Similkameen River at Hwy 3 Bridge, Princeton	00BC08NL0001		Metals Nutrients Organics
7	Similkameen River above 20 Mile Creek	00BC08NL0008		Metals Nutrients Organics
8	Similkameen River at Border	00BC08NN0005		Metals Nutients Organics
9	Henri Creek above 20 Mile Creek	00BC08NL0010		Metals Nutrients Organics
12	Wolfe Creek near Hedley	00BC08NL0009		Metals Nutrients Organics

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 05

PROJECT TITLE: FRASER RIVER ESTUARY WQO'S
Project Coordinator: D. Valiela
Project Alternate(s): L.J. Zeman, W.E. Erlebach

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals:
To provide management with information for negotiating, establishing and maintaining Water Quality Objectives on the Fraser River Estuary by identifying ambient levels and trends for toxic chemicals. To provide management with recommendations for improving water quality conditions in the Estuary.

Rationale:
The Lower Fraser is the most important area in this Region, both in terms of population and economics. Preliminary work on the identification of organic contaminants in sediment and biota has indicated that levels of toxic chemicals in the aquatic ecosystem may be problematic. The establishment and maintenance of Water Quality Objectives on the Lower Freaser will promote the wise use of that resource, and thereby minimize the potential for health risks and conflicts among water uses.

Description:
a. Support DOE in developing a Water Quality Plan and approaches to establishing Water Quality Objectives through participation as the federal-provincial program develops.

b. Acquire existing water use data and information through overview studies to support the formulation of Water Quality Objectives, with information compiled by March 31, 1986.

c. Complete one reconnaissance of the Fraser River Estuary by March 31, 1986.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.5	0.5
Total PY	0.5	0.5
Salary	18.2	18.2
O&M	2.0	2.0
Contracts	6.5	6.5
Capital	0.0	0.0
Total	26.7	26.7

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 06

PROJECT TITLE: COLUMBIA RIVER WQO'S
Project Coordinator: D. Valiela
Project Alternate(s): D.D. MacDonald, S.W. Sheehan

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To provide management with information for negotiating, establishing and maintaining Water Quality Objectives on the Columbia River.

Rationale: The Canadian portion of the Columbia River is currently being utilized for the disposal of toxic chemicals and nutrients. There is, then, considerable potential for dispute arising from upstream activities within British Columbia impairing water uses in the State of Washington. By participating in the formulation of W.Q.O.'s for the Columbia, the Branch is promoting the wise use of that resource, and minimizing the potential for international conflict.

Description: Using concepts and approaches developed, initiate collection of information necessary to establish Water Quality Objectives for the Columbia River. Specificially to:

a. Complete one reconnaissance trip to the Columbia River by March 31, 1986.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.00	0.00
PY Professional	0.00	0.00
Total PY	0.05	0.05
Salary	1.8	1.8
O&M	1.0	1.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	2.8	2.8

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 07

PROJECT TITLE: SURVEYS - DIVISION SUPPORT
Project Coordinator: L.M. Churchland
Project Alternate(s): S.W. Sheehan, T.M. Tuominen

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To provide professional advice and a regional perspective to headquarters management in developing national strategies for water quality monitoring, surveys, and assessments. To provide support in planning and operations of the Water Quality Branch and Surveys and Interpretation Division.

Rationale: By providing input into policy decisions at the national level, the Branch is ensuring that Regional concerns are being considered and addressed. Planning and management are required to ensure the effective operations of the Surveys and Interpretation Division, and the Water Quality Branch.

Description: Attend meetings of Heads, Monitoring and Surveys Division and provide input, as required. Attend Monitoring Workshop and present a paper on the Stikine River including station evaluation studies, quality control, and interrelationships between water quality variables. Provide input to long-term operational plans, work plans; review proposals, reports, and correspondence; participate in meetings, workshops, staffing and job evaluations as required.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.25	0.25
Total PY	0.25	0.25
Salary	9.1	9.1
O&M	4.0	4.0
Contracts	0.0	0.0
Capital	19.7	19.7
Total	32.8	32.8

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 10

PROJECT TITLE: COLUMBIA RIVER - WATER CHEMISTRY AND MODELLING OF TOXICANTS

Project Coordinator: S.W. Sheehan
Project Alternate(s): L.M. Churchland

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To design a water quality model to estimate concentrations of relevant toxicants and associated variables in the Columbia River at Waneta, a water quality station located upstream of the U.S.-Canada Border.

Rationale: Approval of requests for effluent discharges from the lead-zinc smelter and fertilizer complex at Trail often result in the discharge of toxicants to the Columbia River under various flow conditions. In order to estimate the toxicant levels above and immediately below the U.S.-Canada border resulting from anticipated discharges a predictive model is required.

Description: A model will be designed to estimate toxicant levels at the Waneta station. The model will be tested with data collected from previous surveys. A data report is to be finished by March 31, 1986 on the detailed water chemistry surveys covering the period 1978-1984.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.25	0.25
Total PY	0.25	0.25
Salary	9.1	9.1
O&M	1.0	1.0
Contracts	10.5	10.5
Capital	0.0	0.0
Total	20.6	20.6

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number : 11

PROJECT TITLE: COLUMBIA RIVER - BIOLOGICAL

Project Coordinator: T.M. Tuominen
Project Alternate(s): S.W. Sheehan

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To identify present conditions and potential problems associated with the disposal of metals and nutrients into the aquatic environment, particularly the relationships between nutrients, metals and algal growth.

Rationale: The Columbia River is a major international river that has been the subject of a number of intensive water quality surveys over the past 6 years. Concern has been identified about the introduction of nutrients and potentially toxic materials into the river, especially in relation to possible detrimental effects on the water quality in British Columbia and downstream in the State of Washington, U.S.A.

Description: One data report and the draft of one interpretive report are scheduled to be completed by March 31, 1985. The reports will present the results of an algal assay study on the effects of metals and nutrient discharges on the algal growth potential in the Columbia River.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.95	0.95
Total PY	0.95	0.95
Salary	34.6	34.6
O&M	6.5	6.5
Contracts	0.0	0.0
Capital	0.0	0.0
Total	41.1	41.1

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number : 12

PROJECT TITLE: COLUMBIA RIVER (TOXICANTS IN FISH)
Project Coordinator: S.W. Sheehan
Project Alternate(s): L.M. Churchland, T.M. Tuominen

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To compile and interpret mercury, heavy metal and hepatic metallothionein data collected for the fish of the Columbia River.

Rationale: The data acquired from the Columbia River is to be interpreted with respect to the health and welfare edibility standards and to be statistically analyzed for possible trends in the levels of metals in fish tissues. The surveys and subsequent interpretations of the data are undertaken to insure that provisions of the Boundary Waters Treaty are met.

Description: Data from fish samples collected from field trips for the period 1976-1983 will be interpreted and a draft report is to be completed.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.2	0.2
Total PY	0.2	0.2
Salary	7.3	7.3
O&M	0.0	0.0
Contracts	15.0	15.0
Capital	0.0	0.0
Total	22.3	22.3

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 13

PROJECT TITLE: ENVIRONMENTAL REFERRALS
Project Coordinator: S.W. Sheehan
Project Alternate(s): L.M. Churchland

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To provide professional advice and a Federal perspective on Environmental contamination issues.

Rationale: By providing advice on water quality issues of national significance, the Branch promotes the wise use of aquatic resources.

Description: Advice on water quality concerns will be provided as required to WPM and other federal agencies, and to the provincial government, particularly with respect to Cominco, the lead-zinc smelter at Trail, B.C.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.1	0.1
Total PY	0.1	0.1
Salary	3.6	3.6
O&M	2.0	2.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	5.6	5.6

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 14

PROJECT TITLE: TOXIC METAL SPECIATION
Project Coordinator: T.L. Tremblay
Project Alternate(s): F.T.S. Mah

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals:
To adapt a method for the measurement of the labile (potentially toxic) fraction of heavy metals such as copper and zinc.

Rationale:
Toxic metals can be present in freshwaters (and sediments) as free ions or in complexes (inorganic or organic). These chemical species have different toxicities, so knowledge of their concentrations will help to delineate the biological importance of ambient levels of toxic metals. These measurements will be more significant than total, acid-extractable or dissolved metal concentrations, which have not been correlated with biological toxicities.

As for possible locations for the study, elevated concentrations of zinc have been observed in the Columbia River upstream of the International border, and the Working Committee on Fraser River Estuary Monitoring has identified a need for special studies on the speciation of copper and zinc in the estuary.

Description:
A literature review has indicated that free ions and their weak complexes have higher toxicities than the other species. The method chosen for metal speciation studies is ion-exchange chromatography with a chelating resin, Chelex-100. Tests with synthetic water samples containing known concentrations of copper have verified that the ionic (free) form of copper is retained on the column. The detection limit for copper has to be improved, and the precision established; behaviour of free copper has to be defined in the presence of organic ligands. Then the method will be adapted for zinc, and for use in the WQB mobile laboratory; this will allow measurements on site, which should more closely reflect the biological availability of toxic metals. Four field trips will be taken to measure free and labile copper in water in the lower Fraser River: three by December 31, 1985, one by March 31, 1986. A report on the feasibility of measuring free and labile zinc in water using Chelex 100 will be completed by March 31, 1986.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	1.1	1.1
Total PY	1.1	1.1
Salary	40.0	40.0
O&M	3.0	3.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	43.0	43.0

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 15

PROJECT TITLE: SEDIMENT COLLECTION - FRASER RIVER

Project Coordinator: L.M. Churchland
Project Alternate(s): F.T.S. Mah, T. Tuominen

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals:
To develop accurate, efficient techniques for the concentration of suspended sediments for analysis of toxic organic contaminants. This information will be combined with results from similar studies on the collection of biota and water, and used to develop a proposal for an integrated assessment of toxic organic compounds in the Fraser River estuary.

Rationale:
High levels of toxic organic contaminants such as PAH's and chlorophenols have been identified in one or more of the following media: water, sediments, and biota. The report of the Working Committee on Freaser River Estuary Monitoring has emphasized the improtance of monitoring the input of contaminants to the estuary and their presence in the environment. This study and related studies of biota and water will complement the data collected under the routine monitoring program, provide data on a greater number of toxic contaminants, and provide the capability for measuring the concentrations of toxic organic contaminants which are transported through various portions of the estuary. These data should additionally prove useful in data on a greater number of toxic contaminants, and provide the capability for measuring the concentrations of toxic organic contaminants which are transported through various portions of the estuary. These data should additionally provide useful in the development of water quality objectives.

Description:
A literature review will be conducted and information gathered on methods of suspended sediment concentration, including continuous flow centrifugation and large volume filtration. Particle size data from the lower Fraser River will be reviewed and assessed. An appropriate apparatus for sediment concentration will be selected and tested in the field. A proposal will be developed with other WQB scientists by March 31, 1986 for an integrated assessment of toxic organic contaminants in water, sediments, and biota.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.3	0.3
Total PY	0.3	0.3
Salary	10.9	10.9
O&M	3.0	3.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	13.9	13.9

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 16

PROJECT TITLE: FRASER RIVER - BIOLOGICAL
Project Coordinator: T.M. Tuominen
Project Alternate(s): L.M. Churchland, F.T.S. Mah

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To identify toxic chemicals that are present and accumulating in the Fraser River Estuary by sampling the biota and bed sediments. To determine the concentrations of selected toxic substances in the bed sediments and biota.

Rationale: The DOE toxic chemicals committee has designated top priority to the Fraser Estuary with respect to concerns about toxic chemicals in the aquatic environment. Investigations on the accumulation of toxic organic chemicals in sediments and biota of the estuary have been recommended by the federal-provincial committee on Fraser Estuary monitoring.

Description: Preliminary survey work on toxic organic contaminants in biota and bed sediments of the estuary will be undertaken. Included will be the collection of starry flounders to further investigate high chlorophenol levels detected in flounders collected from the estuary in 1983. Dioxins and dibenzofurans, compounds commonly associated with chlorophenols, will also be analysed in these samples. Two sampling trips will be completed by December 31, 1985, and one by March 31, 1986. The study proposal for a survey of these and other toxic chemicals in biota and bed sediments of the Fraser Estuary will be developed in coordination with projects investigating toxic organic compounds in the water column and suspended sediments by March 31, 1986.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.25	0.25
Total PY	0.25	0.25
Salary	9.1	9.1
O&M	2.0	2.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	11.1	11.1

P R O J E C T D E S C R I P T I O N
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number : 33

PROJECT TITLE: OKANAGAN RIVER
Project Coordinator: G.Y.P. Kan
Project Alternate(s): T.M. Tuominen, F.T.S. Mah

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To establish the concentrations of toxic chemicals in water, sediment and biota in the Osoyoos reach of the Okanagan River. To determine sinks for those toxic compounds in the aquatic environment.

Rationale: Although the Okanagan Valley, one of the major agricultural districts in the region, is subjected to large applications of pesticides annually, a study has never been conducted to evaluate the fate of these toxic chemicals in the aquatic environment. As an international river and with increasing emphasis on toxic chemicals, the monitoring of toxicants in the aquatic eco-system in the Osoyoos reach of the Okanagan River is warranted.

Description: Depending on the timely receipt of results from the National Water Quality Laboratory, a draft of a data report on toxic chemicals in the Okanagan River at Osoyoos will be completed by March 31, 1986.

*Note: In order to complete the draft of the data report all results from Burlington must be received prior to June 30, 1985.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.4	0.4
Total PY	0.4	0.4
Salary	14.6	14.6
O&M	2.0	2.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	16.6	16.6

STATION DESCRIPTION

Project No. 21

MAP NUMBER	STATION LOCATION	NAQUADAT NUMBER	SAMPLING FREQUENCY	PARAMETERS
64	Okanagan River at No. 22 Rd. Trestle Bridge	00BC08NM0084		
65	Okanagan River Wetlands before entering Osoyoos Lake	00BC08NM0085		
66	Okanagan River Between No. 22 Rd. Tressle Bridge and VDS 2	00BC08NM0086		
67	VDS 5	00BC08NM0087		

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 34

PROJECT TITLE: ORGANIC CHEMISTRY
Project Coordinator: G.Y.P. Kan
Project Alternate(s): F.T.S. Mah

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To provide expertise on sampling for toxic organic chemicals, such as pesticides and PCB's, to support the programs of the Water Quality Branch. To support quality control programs for samples submitted to the Burlington laboratory for organic analysis and to provide advice and assistance on monitoring and interpretation of data related to toxic organic chemicals.

Rationale: By providing resources, quality control and chemical expertise for the analysis of toxic organic chemicals in the environment, the Branch is promoting the generation of meaningful information that will meet its responsibilities for the toxic chemicals program.

Description: Support in toxic organic chemicals will be provided by:

1) conducting the quality control programs on samples submitted to Burlington for analysis by analyzing splits, spikes, blanks and standards;
2) Preparing samples by extraction and clean-up techniques for shipment to Burlington for analysis, when necessary;
3) Modifying previously developed sampling techniques to meet the needs of the Region;
4) Advising on sampling methodology to be used and interpretation of results;
5) Attending committee meetings and reviewing papers dealing with Toxic Chemicals Programs.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.1	0.1
PY Professional	0.3	0.3
Total PY	0.4	0.4
Salary	14.6	14.6
O&M	5.0	5.0
Contracts	0.0	0.0
Capital	0.0	0.0
Total	19.6	19.6

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 35

PROJECT TITLE: TOXIC ORGANICS IN FRASER RIVER ESTUARY - WATER
Project Coordinator: G.Y.P. Kan
Project Alternate(s): F.T.S. Mah

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To carry out pilot studies required for the measurement of levels of toxic organic compounds in the Fraser River Estuary water.

Rationale: The lower Fraser is the most important area in this Region. With the exception of the limited work done under TOXFUND contract in 1983-84 and 1984-85 and the chlorophenol investigation by N.W.R.I. in 1984-85 very little is known about the toxic organics in the lower Fraser waters. In view of the importance of the Fraser it is warranted to assign resources to investigate the toxic organics in the Fraser River Estuary water.

Description:

a. The feasibility of modifying the high volume sampler developed by the Water Quality Branch under estuarine conditions in the lower Fraser will be investigated by the addition of acid. Two or more trips to the Fraser River Estuary will be conducted so that spike and recovery studies on chlorinated phenols and PCB's can be made.

b. When and if supplementary resources are available the feasibiltiy of adapting the appropriate sampler to microprocessor control will be investigated.

RESOURCES: ($'000)

	Part A		*Part B	
	4.1	Total	4.1	Total
PY Technical	0.2	0.2	0.0	0.0
PY Professional	0.9	0.9	0.3	0.3
Total PY	1.1	1.1	0.3	0.3
Salary	40.0	40.0	10.9	10.9
O&M	5.0	5.0	0.0	0.0
Contracts	0.0	0.0	0.0	0.0
Supplementary Res.	0.0	0.0	100.0	100.0
Capital	0.0	0.0	0.0	0.0
Total	45.0	45.0	110.9	110.9

* This project is contingent on the receipt of supplementary resources (100.0K). Funding of this project will result in 0.3 PY's of "A" base being diverted from other Toxic Chemicals projects.

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985-86

Region: P&Y
Project Number: 36

PROJECT TITLE: BIOLOGY

Project Coordinator: T.M. Tuominen
Project Alternate(s): F.T.S. Mah

ECS NATIONAL PROGRAM NAME: Toxic Chemicals
ECS CODE: 4.1

Goals: To adapt biological techniques for monitoring water quality and to apply them in surveys of boundary reaches of rivers where problems associated with toxic chemicals may be of concern.

Rationale: The increasing priority given to monitoring toxic chemicals coupled with the advantages of using biological measurements for monitoring these toxicants in the aquatic environment have warranted the assignment of biology field and laboratory resources to the Toxic Chemicals Program.

Description: This project consists of several components concerned with biological monitoring. One component is the compilation of the available biological and sediment results from the Okanagan River pesticide study in preparation for a report. Another component consists of the preparation of sediment and biological samples, for the Flathead and Fraser Rivers, for chemical analysis. This project also includes the identification and enumeration of biological samples from the Flathead and Fraser Rivers and assistance in the interpretation of biological results.

RESOURCES: ($'000)

	4.1	Total
PY Technical	0.0	0.0
PY Professional	0.15	0.15
Total PY	0.15	0.15
Salary	5.5	5.5
O&M	6.0	6.0
Contracts	28.0	28.0
Capital	0.0	0.0
Total	39.5	39.5

FIGURE 16 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

FIGURE 17 WATER QUALITY BRANCH MONITORING STATIONS 1985-86
STATIONS DE SURVEILLANCE DE LA DIRECTION DE LA QUALITÉ DES EAUX 1985-86

D.6 HEADQUARTERS
ADMINISTRATION CENTRALE

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER 0 - 1

PROJECT TITLE: OTTAWA RIVER

NATIONAL PROGRAM NAME: Canada/US and Interjurisdictional Water Management

ECS CODE: 1.1

GOALS: 1. Prepare draft of "First Annual Report of the Coordinators Committee for the quality of the Ottawa River".

2. Establish technical sub-committee for the development of water quality objectives and implementation of the monitoring plan for the Ottawa River.

RATIONALE:
Ontario, Quebec and Canada have established a tripartite Committee to coordinate monitoring of the Ottawa River and provide advice on pollution control to the ministers, following the recommendations of the previous study.

DESCRIPTION:
A coordination committee, including representatives from the Branch and the provinces, will focus on monitoring activities. A subcommittee is developing water quality objectives for the interprovincial section of the river.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	1.0
SALARIES	49.50
O&M	5.00
CONTRACTS	
CAPITAL	
TOTAL $	54.50

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER 0 - 2

PROJECT TITLE: PROVIDE INFORMATION AND ADVICE ON WATER QUALITY OBJECTIVES.

NATIONAL PROGRAM NAME Canada/US and Interjurisdictional Water Management ECS CODE: 1.1

GOALS:
1. Provide scientific support to the GLWQB/AEOC.
2. Provide scientific review to Ontario MOE for review of water quality criteria.
3. Support and attend meetings of PPWB/COWQ.
4. Draft information brochure on water quality objectives by Oct. 1985.

RATIONALE:
The Branch is committed to providing information and advice to provincial and federal-provincial agencies on the development of water quality objectives.

DESCRIPTION:
The Division provides support and attends meetings of interagency groups to promote water quality objectives and provide advice and scientific information.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	1.0
SALARIES	49.50
O&M	5.00
CONTRACTS	-
CAPITAL	-
TOTAL $	54.5

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER 0 - 3

PROJECT TITLE: BOUNDARY WATER QUALITY REPORT.

NATIONAL PROGRAM NAME: Canada/US and Interjurisdictional Water Management ECS CODE: 1.1

GOALS: a. Review situation reports.
b. Develop concept for boundary water quality report.
c. Draft report by March 1986.

RATIONALE:
Annual reports are currently prepared for a number of Canada/US waters. There is a need for a national perspective on the quality of boundary water. This report will also fulfull part of the federal government's responsibilities under section 4 of the Boundary Waters Treaty.

DESCRIPTION:
A report will be prepared jointly by the Monitoring & Surveys Division and the Water Quality Objectives Division.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	0.7
SALARIES	38.00
O&M	3.00
CONTRACTS	-
CAPITAL	-
TOTAL $	41.00

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ HQ
PROJECT NUMBER DIR-1

PROJECT TITLE: WQB - MANAGEMENT AND ADMINISTRATION

NATIONAL PROGRAM NAME: Management and Administration ECS CODE: 1.6

GOALS:

Ensure effective and efficient Management of all aspects of Water Quality Branch HQ.

Provisions of Policy, Direction and Advice to IWD and the Water Quality Branch.

RATIONALE: Administrate policies, programs, and activities of WQB-HQ and regional offices in an active and efficient manner.

DESCRIPTION: Provision of policy, advice and guidelines to regional offices in the conduct of Water Quality Branch activities including monitoring and surveys, laboratory operations, data storage and retrieval, data interpretation and Water Quality Objectives activities.

Provision of information and advice to the DG-IWD and ADM-ECS as well as other federal officials on aquatic environmental issues.

Timely completion of Budget Year Work plans in February 1986. Timely completion of succesion plans. Mid-year third quarter and year-end performance reports in April 1985 and January 1986. Completion of Long Term Operational Plans in December 1985. Training and development plan by January 1986.

Completion of all administration and financial reports in advance of due date.

Staff appraisals completed by March, 1985.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	2.8
TOTAL PY	2.8
SALARIES	158.90
SALARY RESERVE	79.60
O & M	176.50
CONTRACTS	-
CAPITAL	-
TOTAL $	425.40

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ HQ
PROJECT
NUMBER S.Adv.-1

PROJECT TITLE: ADVICE - CANADA-U.S. WATER QUALITY

NATIONAL PROGRAM NAME: Canada-U.S. and Interjurisdictional Water Management

ECS CODE: 1.6

GOALS:

1. Provide a centre within the WQB for effectively responding to and acting for ECS Senior Management on boundary waters issues.
2. To provide information Senior Management on Great Lakes boundary water problems under review by the Great Lakes Water Quality Board (IJC)SO.
3. To assist in negotiations with the U.S. on acceptable PO_4 loadings to the Great Lakes and acceptable allocations to each of the parties.
4. To provide the Director, WQB, headquarters with advice on the operational activities of the Water Quality Branch.
5. To provide secretariat service to the Water Quality Subcommittee of the Interdepartmental Committee on Water for ICW.

RATIONALE:
Resolve interjurisdictional water resource problems and realize interjurisdictional water resource opportunities in accordance with national interests.

DESCRIPTION:
Provide expert advice and guidance to DG, ADM and other senior staff.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	1.0
TOTAL PY	1.0
SALARIES	62.40
O & M	6.00
CONTRACTS	-
CAPITAL	-
TOTAL $	68.40

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ HQ
PROJECT NUMBER A-1

PROJECT TITLE: WATER QUALITY MONITORING AGREEMENTS

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

1) Complete negotiations with Newfoundland, New Brunswick and Manitoba and initiate negotiations with Ontario, Saskatchewan, Nova Scotia and P.E.I.

2) Implementation and review of Quebec (signed) and Alberta, Newfoundland and B.C. (to be signed 85-86) Agreements

3) To develop multi-media monitoring techniques, e.g. holding Water Quality Monitoring Workshop formulating levels and effects monitoring strategy.

4) Review statistical tools to better design assessment networks and analyse water quality data.

RATIONALE:

There is a need for a comprehensive water quality assessment strategy in Canada using multi-media sampling. The cost efficient means of achieving this assessment is through federal-provincial agreements that will encourage exchange of information and cooperative studies and will make water quality data directly available to provincial and federal water quality managers.

DESCRIPTION:

As described in the "Water Quality Branch Strategy for Assessment of the Quality of the Aquatic Environment (1985).

RESOURCES: ($'000)

	Total
PY PROF.	2.75
TOTAL PY	2.75
SALARIES	138.70
O & M	34.40
CONTRACTS	-
CAPITAL	7.50
TOTAL $	180.60

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER MS-1

PROJECT TITLE: WATER QUALITY MANUALS AND GLOSSARY

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:
As part of the WQB's effort to document the methodology for all phases of water quality monitoring, a "Field Quality Assurance Manual", a manual on "Data Presentation and Analysis"and a glossary will be completed in the FY 1985-86.

RATIONALE:
The WQB, in carrying out its mandate to provide water quality information, must ensure that the data collected is scientifically valid. The two manuals and the glossary will contribute to this objective. In addition, they will form a basis for the training of the staff and for disseminating recommended methods for water quality monitoring.

DESCRIPTION:
The following manuals will be prepared:

1. Field Quality Assurance
2. "Water Quality Data Presentation and Analysis"
3. Glossary of Water Quality (French-English and English-French, with definitions and examples)

RESOURCES: ($'000)

	Total
TECH. PY PROF.	1.05
TOTAL PY	1.05
SALARIES	52.90
O&M	13.20
CONTRACTS	-
CAPITAL	-
TOTAL $	66.10

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER MS-2

PROJECT TITLE: WATER QUALITY INTERPRETIVE REPORTS

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

Preparation and publication of water quality intepretative reports to disseminate information on water quality to resource managers, consultants and the general public.

RATIONALE:

In the last several years the issue of water quality has come to the forefront of resource and environmental management aspects of Canadian society. In this context the water quality interpretative reports have an important role in bringing the data collected to the resource managers in a form which can be used in the decision making process. In addition, the reports inform the Canadian public about the state of water resources in the country.

DESCRIPTION:

Included in the 1985/1986 are the following projects:

1. Publication of the New Brunswick interpretive report.
2. A report on physical parameters, hardness and major ions in important river basins of Canada.
3. A report on the quality of drinking water sources.
4. A water quality chapter in the "Hydrology of North America" volume (in collaboration with U.S. Geological Survey)

RESOURCES: ($'000)

	Total
TECH. PY PROF.	1.35
TOTAL PY	1.35
SALARIES	68.10
O&M	16.90
CONTRACTS	-
CAPITAL	-
TOTAL $	85.00

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER MS-3

PROJECT TITLE: FIELD SAFETY PROCEDURES AND RESEARCH NEEDS

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:
Improve the effectiveness, efficiency and the safety of operations in the Water Quality Branch.

RATIONALE:
To enable the Branch to carry out its mandate and to respond to increased demands for water quality information and advice while the financial and human resources are limited improving effectiveness and efficiency of operations and insuring their safety is an important objective for WQB's management.

DESCRIPTION:
1. Finalize WQB Field Safety Guidelines and submit them for formal approval to Treasury Board.
2. Participate in the research-operations liaison.
3. Review water quality documents and prepare correspondence.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	0.35
TOTAL PY	0.35
SALARIES	17.70
O&M	4.40
CONTRACTS	-
CAPITAL	-
TOTAL $	22.10

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER MS-4

PROJECT TITLE: WATER QUALITY BRANCH ANNUAL PUBLICATIONS

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:
Dissemination of information about the projects planned in the WQB for the FY 1985/86 and the reports published in 1984.

RATIONALE:
To increase the efficiency, effectiveness and to document its operations and output WQB has been publishing on an annual basis a report describing ongoing projects, and a list of publications authored by WQB's staff.

DESCRIPTION:
The following reports will be compiled:

1. WQB Activities 1985/86.
2. List of Publications 1984.
3. Revise or prepare new regional and headquarters leaflet as needed.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	0.50
TOTAL PY	0.50
SALARIES	25.30
O&M	6.30
CONTRACTS	-
CAPITAL	-
TOTAL $	31.60

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER 1003

PROJECT TITLE: FEDERAL-PROVINCIAL AGREEMENT ON DATA MANAGEMENT

NATIONAL PROGRAM NAME Water Quality Management Data ECS CODE: 1.3

GOALS:

To archive and provide data on water quality in accordance with federal/provincial agreements.

RATIONALE:

Data management is an integral part of the federal-provincial agreements.

DESCRIPTION:

The comparability of federal and provincial data management techniques will be evaluated and the mechanisms and costs of timely data exchange and storage will be determined. Computer programs will be prepared to transfer data between provincial signatories and NAQUADAT. The performance target for data exchange is to be able to verify and store 50% of the data received from cooperating provincial agencies within two weeks and to be able to transfer 90% of federal data requested by a province within a similar period.

RESOURCES: ($'000)

	Total
TECH.	0.2
PY PROF.	0.3
TOTAL PY	0.5
SALARIES	18.10
O & M	5.00
CONTRACTS	-
CAPITAL	-
TOTAL $	23.10

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER 31005

PROJECT TITLE: INTERPRETATION AND PRODUCTION OF DATA REPORTS

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

To produce data and interpretative reports on water quality conditions which further understanding of the aquatic environment.

RATIONALE:

FPSIW Article 9 - Provision of information, advice and analysis.

DESCRIPTION:

A detailed data report will be produced for Alberta, Saskatchewan, Manitoba and Northwest Territories as well as for the PPWB report and and other studies. This project is used to cover costs and efforts associated with data analysis for WQB. This would include computer work associated with interpretative studies, noncompliance reporting and other requests for data processing.

RESOURCES: ($'000)

	Total
TECH.	0.3
PY PROF.	0.3
TOTAL PY	0.6
SALARIES	21.70
O & M	12.60
CONTRACTS	-
CAPITAL	-
TOTAL $	34.30

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER 31006

PROJECT TITLE: MANUALS, GUIDELINES AND OTHER PUBLICATIONS

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:

To provide scientific information and advice on water quality.

RATIONALE:

Documentation and dissemination of the work done in the Water Quality Branch and the results obtained are considered integral parts of the Branch programs. See also "Water Quality Branch - Objectives and Programs" paper.

DESCRIPTION:

The following publications are scheduled for 1985/86:

1. Annual NAQUADAT Dictionary of Parameter codes
2. NAQUADAT pocket reference card
3. Draft of new NAQUADAT Users Reference Manual

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	1.17
SALARIES	42.30
O & M	27.40
CONTRACTS	-
CAPITAL	-
TOTAL $	69.70

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER 32001

PROJECT TITLE: NAQUADAT - NATIONAL WATER QUALITY DATA BASE

NATIONAL PROGRAM NAME Water Quality Management Data ECS CODE: 1.3

GOALS:

To effectively archive, manage and disseminate Water Quality Branch data.

RATIONALE:

FPSIW Article 9 and support for all other WQB activities.

DESCRIPTION:

This project encompasses the basic core services of NAQUADAT - the continuing updating, maintaining and improving of the water quality data base. It includes safeguarding and managing all WQB analytical results and the management of the Dictionary file of parameters, as well as the five System 2000 data bases. It includes the provision of information and other aspects of electronic data processing of results. It covers training, program development and documentation as well as Novel EDP applications such as developing prototype databases, new computer programs and colour graphics routines.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	2.0
SALARIES	72.30
O & M	45.00
CONTRACTS	
CAPITAL	10.00
TOTAL $	127.30

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ HQ
PROJECT NUMBER DS-5

PROJECT TITLE: GLOBAL ENVIRONMENTAL MONITORING SYSTEM

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:
To coordinate the Canadian input to the GEMS/WATER monitoring scheme.

RATIONALE:
The Global Environmental Monitoring System (GEMS) began as an outcome of the United Nations Conference on the Human Environment held in Stockholm in June 1972. The water component (GEMS/Water) of this project is a joint UNESCO and WHO operation which attempts to monitor long-term trends in water pollution of a selected numbers of rivers, lakes and ground water around the world. The purpose of the monitoring is to detect any serious deterioration of the environment as a result of the introduction of man-made pollutants, and to provide advance warning to mankind. Under the program a global network of monitoring stations has been established and uniform methods of sampling and analysis are being promoted. The data from the world-wide monitoring program is managed in the GLOWDAT database facility at the Canada Centre for Inland Waters.

DESCRIPTION:
The Water Quality Branch provides the Canadian input to the GEMS program. Data from selected rivers and lakes are forwarded periodically from NAQUADAT to the GLOWDAT data handling system. The GEMS requirements are met through regular WQB monitoring but with a commitment to maintain on-going monitoring at the 13 sites designated for the global program. Additionally, the WQB provides support and advice for GLOWDAT data management as requested by the Collaborating Centre at NWRI, as well as expert advice on project reviews and evaluation of the entire GEMS program.

A recent evaluation of the GEMS/WATER data has suggested changes required to the monitoring scheme. The WQB will adapt to respond to identified needs.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	0.1
TOTAL PY	0.1
SALARIES	3.60
O & M	-
CONTRACTS	-
CAPITAL	-
TOTAL $	3.60

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER 0 - 4

PROJECT TITLE: TOXIC CHEMICALS

NATIONAL PROGRAM NAME: Toxic Chemicals ECS CODE: 4.1

GOALS:

a. Provide information and advice to WQB Director.
b. Organise IWD Toxic Chemical Workshop.
c. Help review IWD LTOP plan.
d. Provide DOE input into ICTC Safe Drinking Water Plan.
e. Represent DOE on Federal-Provincial Drinking Water Guidelines Committee.

RATIONALE:
The Branch Director is responsible for managing the IWD toxic chemical program. The above goals are to help meet this responsibility.
The Branch is committed to providing information and advice on environmental aspects of safe drinking water and the protection of aquatic life..

DESCRIPTION:
The Division supports the Director in his role as program manager by attending meetings, and providing advice on safe drinking water to federal and federal-provincial committees.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	0.2
SALARIES	7.30
O&M	1.50
CONTRACTS	-
CAPITAL	-
TOTAL $	8.80

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER 0 - 5

PROJECT TITLE: CANADIAN WATER QUALITY GUIDELINES.

NATIONAL PROGRAM NAME: Toxic Chemicals ECS CODE: 4.1

GOALS:
1. Complete first draft guidelines by October, 1985.
2. Submit the draft guidelines for review to CCREM task force by March, 1986.
3. Outline of the report on research needs to CCREM task force by June, 1985.
4. Draft report on research needs to task force by March, 1986.

RATIONALE:
As a result of the recommendation of the Canadian Council of Resource and Environment Ministers (CCREM) Task Force on Water Quality Guidelines Council has requested Environment Canada to draft Canadian Water Quality Guidelines and report on research gaps.

DESCRIPTION:
The reports are being prepared in cooperation with various federal departments, provincial agencies and with assistance from NWRI and Branch regional Offices.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	2.1
SALARIES	104.50
O&M	10.50
CONTRACTS	-
CAPITAL	-
TOTAL $	115.00

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ HQ
PROJECT NUMBER A-2

PROJECT TITLE: FEDERAL-PROVINCIAL WATER QUALITY AGREEMENTS

NATIONAL PROGRAM NAME: Toxic Chemicals ECS CODE: 4.1

GOALS:
Co-ordination of toxic chemicals monitoring activities under federal provincial agreements.

To develop multi-media monitoring for toxics on a national scale

- to evaluate and differentiate the information derived from multi-media sampling and GC and GC/MS screening protocols for determining the presence of toxics in the aquatic environment

- to further develop the approaches used by the Branch in measuring and assessing toxics in the aquatic environment.

RATIONALE:
The WQB provides technical and scientific advice and information on the presence and quantity of toxic chemicals in and on their effects on the integrity and health of aquatic ecosystems. This information is then used to determine the aquatic systems suitability for supporting various water uses.

DESCRIPTION:
Negotiations to include toxics monitoring within Federal-Provincial Agreements will be completed with New Brunswick and Manitoba. Negotiations with Ontario, Saskatchewan, Nova Scotia and Prince Edward Island will commence. Implementation and review of Quebec (signed), Alberta and Newfoundland (to be signed 85-86) Agreements will also occurr.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	1.5
SALARIES	68.00
O & M	6.00
CONTRACTS	-
CAPITAL	-
TOTAL $	74.00

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER MS-5

PROJECT TITLE: TOXIC CHEMICALS IN CANADIAN SURFACE WATERS

NATIONAL PROGRAM NAME Toxic Chemicals ECS CODE: 4.1

GOALS:

1. Develop an all-weather precipitation sampler to collect samples for analysis of organic compounds.
2. Monitor surface waters for radionuclides contamination.
3. Coordinate the Toxic Chemicals Program in the Water Quality Branch - HQ and Regional Offices.
4. Prepare a report on the chemical quality of several Canadian drinking water sources.
5. Prepare a plan and a report on WQB Pesticides Monitoring.

RATIONALE:

Toxic Chemicals is a high priority program in Environment Canada and the WQB is responsible for providing the information related to the quality of the aquatic environment.

DESCRIPTION:

1. Evaluate in the field the prototype precipitation sampler (with W.J. Strachan - NWRI).
2. Prepare specifications for the construction of additional samplers.
3. Prepare report on the National Radionuclides Network.
4. Prepare work plans as needed.
5. Coordinate WQB's response to issues related to TCP.
6. Prepare a report on the quality of some surface waters used for obtaining drinking water.
7. Prepare a plan and a report on WQB Pesticides Monitoring.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	2.2
SALARIES	110.90
O&M	16.00
CONTRACTS	-
CAPITAL	26.00
TOTAL $	152.90

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ HQ
PROJECT NUMBER DIR-2

PROJECT TITLE: MANAGEMENT OF IWD TOXIC CHEMICALS PROGRAM

NATIONAL PROGRAM NAME: Toxic Chemicals ECS CODE: 4.1

GOALS:

Effective and efficient management of IWD Toxic Chemicals program.

RATIONALE:

Toxic Chemicals is high priority program in DOE and IWD is an important contribution to it. The increasing need for information on the effects of toxic chemicals on the aquatic environment combined with limited resources require effective and efficient management to achieve the program goals.

DESCRIPTION:

Recommend policies and priorities, review plans and resource allocation, and evaluate results.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	0.2
TOTAL PY	0.2
SALARIES	12.20
O & M	5.00
CONTRACTS	-
CAPITAL	-
TOTAL $	17.20

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ HQ
PROJECT NUMBER DS-6

PROJECT TITLE: DATA MANAGEMENT - TOXIC SUBSTANCES

NATIONAL PROGRAM NAME: Toxic Chemicals

ECS CODE: 4.1

GOALS:
To effectively archive, manage and disseminate information on toxic substances measured by the Water Quality Branch so as to be able to classify toxic substances and indicate environmental levels throughout Canada.

RATIONALE:
The pervasiveness of toxic chemicals and the high priority placed on their assessment and control require that monitoring data be readily available for inspection and analysis. The NAQUADAT data system serves as the repository for this information.

DESCRIPTION:
Toxic chemicals will be classified in the NAQUADAT Dictionary of parameters and monitoring results will be entered onto the appropriate NAQUADAT data base. All requests for information will be handled expeditiously. A prototype data base for biological media will be established. A report on metal data is planned expeditiously.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	2.0
SALARIES	71.20
O & M	20.00
CONTRACTS	-
CAPITAL	6.50
TOTAL $	97.70

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER MS-6

PROJECT TITLE: AQUATIC EFFECTS MONITORING

NATIONAL PROGRAM NAME Long Range Transport of Airborne Pollutants ECS CODE 4.2

GOALS:

Oversee the operation of the LRTAP effects monitoring network in Canada and ensure its efficient operation according to monitoring plans.

RATIONALE:

Long range atmospheric transport has been identified as a very important pathway by which various pollutants reach aquatic ecosystems. LRTAP is a priority in DOE.

DESCRIPTION:

Ensure that LRTAP Aquatic Monitoring is carried out following an approved monitoring plan. Audit the network QA/QC procedures. Prepare an IWD LRTAP Aquatic Monitoring Strategy Paper and a Protocols Report. Represent IWD on the Fed./Prov. LRTAP CCRM Aquatic Effects Monitoring Task Group.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	0.55
TOTAL PY	0.55
SALARIES	26.90
O&M	4.00
Non A-base	13.00
CAPITAL	-
TOTAL $	43.90

WATER QUALITY BRANCH PROJECT

1985/1986 NUMBER MS-7

PROJECT TITLE: LRTAP DATA

NATIONAL PROGRAM NAME: Long Range Transport of Airborne Pollutants ECS CODE 4.2

GOALS:
To maintain a national data base related to the long range transport of airborne pollutants.

RATIONALE:
FPSIW Article 9. High priority departmental program.

DESCRIPTION:
Acquire, code, update and manage designated data related to LRTAP. This includes surface water and precipitation chemistry results to NAQUADAT. Specific data sets include Quebec Provincial Network Data, LRTAP Aquatic Monitoring Projects and Intensive Study Data.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	0.55
SALARIES	26.90
O&M	4.00
Non A-base	5.00
CAPITAL	-
TOTAL $	35.90

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/1986

REGION/HQ HQ
PROJECT NUMBER MS-8

PROJECT TITLE: LRTAP AQUATIC BASELINE REPORT

NATIONAL PROGRAM NAME: Long Range Transport of Airborne Pollutants ECS CODE 4.2

GOALS:
In cooperation with NWRI and WQB regional offices produce a baseline report on the current status of Canada's Aquatic resources with respect to acidification related chemical parameters.

RATIONALE:
Many surveys have been carried out across Canada in support of the LRTAP program and reports written. However no document exists which pulls together all this information into one report describing the status of Canada's Aquatic Resources in response to acid stress.

DESCRIPTION:
The various reports written on the subject of effects and rain on Canadian Surface waters as well as more recent data will be analyzed and a report written describing the present status of the aquatic resources.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	0.4
TOTAL PY	0.4
SALARIES	16.60
O&M	2.00
Non A-base	2.00
CAPITAL	-
TOTAL $	20.60

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ HQ
PROJECT NUMBER L-1

PROJECT TITLE: ANALYTICAL SERVICES ENVIRONMENTAL PARAMETERS

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:
To provide a National analytical support service to inter-departmental agencies and to maintain analytical capabilities for complex chemical and physical analyses on a wide variety of water, wastewater, precipitation, sediment, biota and other substrates related to the aquatic ecosystem in support of studies related to environmental management and protection and related research.

RATIONALE:
As part of the ECS mandate for the generation of physical, chemical and biological environmental data in relation to the Canada Water Act, Canada/U.S. Water Quality Agreement, Fisheries Act, Environmental Contaminants Act and the Federal Policy Statement on Inland Waters.

DESCRIPTION
Provision of direct analytical services to the following activities:

- Programs of the five Water Quality Branch regions across Canada
- NWRI research projects
- Great lakes Water Quality program
- Operation of the ship board laboratory to analyse Great Lakes waters
- Atmospheric Environmental Services precipitation program
- Environmental Protection Services program
- GLFRB research and monitoring projects

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	29.0
SALARIES	798.30
O & M	380.00
CONTRACTS	-
CAPITAL	127.00
TOTAL $	1,305.30

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1984/85

REGION/HQ HQ
PROJECT NUMBER L-2

PROJECT TITLE: WQB - MANAGEMENT AND ADMINISTRATION

NATIONAL PROGRAM NAME: Water Quality Management Data ECS CODE: 1.3

GOALS:
Continue implementation of IWD Laboratory consolidation plan for operational laboratories.

Direct preparation and obtain approval for a National Water Quality Assessment Program.

RATIONALE:
An efficient and effective laboratory program is essential. Water Quality Branch must develop an effective and efficient National Water Quality Assessment program.

DESCRIPTION:
Complete effective new laboratory organizational structure including the development and implementation of a management system for the operation of the National Water Quality Laboratory at CCIW Burlington.

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	2.0
SALARIES	55.00
O & M	50.00
CONTRACTS	-
CAPITAL	10.00
TOTAL $	115.00

PROJECT DESCRIPTION
WATER QUALITY BRANCH
1985/86

REGION/HQ HQ
PROJECT NUMBER L-3

PROJECT TITLE: ANALYTICAL SERVICES - TOXIC SUBSTANCES

NATIONAL PROGRAM NAME: Toxic Chemicals ECS CODE: 4.1

GOALS:
To provide a National analytical support service and to maintain complex analytical methodology on organic and inorganic toxic substances on a wide variety of water, wastewater, precipitation, sediment, biota and other related aquatic substrates in support of toxic substances studies carried out by environmental agencies.

RATIONALE:
As part of the ECS mandate for the generation of physical chemical and biological environmental data in relation to the Canada Water Act, Canada/U.S. Water Quality Agreement, Fisheries Act, Environmental Contaminants Act and the Federal Policy Statement on Inland Waters.

DESCRIPTION
Provision of direct analytical services to the following activities:

- Programs of the five Water Quality Branch regions across Canada
- NWRI research projects
- Great lakes Water Quality program
- Operation of the ship board laboratory to analyse Great Lakes waters
- Atmospheric Environmental Services precipitation program
- Environmental Protection Services program
- GLRFB research and monitoring projects

RESOURCES: ($'000)

	Total
TECH. PY PROF.	
TOTAL PY	12.25
SALARIES	337.20
O & M	150.00
CONTRACTS	-
CAPITAL	34.00
TOTAL $	521.20